Electric Railway Journal

Index to Volume XLIII

January to June, 1914

McGraw Publishing Company, Inc.
239 West 39th St., New York City

U. OF I.
LIBRARY

Instructions for Use of Index

This index is essentially a subject index, not an index of titles, and articles treating a number of different subjects are indexed under each subject. In addition, a geographical reference is published wherever the article relates to any particular railway company. The geographical method of grouping serves to locate in the index any article descriptive of practices, conditions, events, etc., when the searcher knows the name of the electric railway to which the article refers. Groupings are made under the names of the city in which the main office of the company is located, and cross references are given for the names of the railways, which appear in alphabetical order. An exception is made in the case of electrified sections of steam railroads, such entries being made direct under the name of the railroad.

In the subject index, the alphabetical method is followed, and if there is a choice of two or three keywords the one most generally used has been selected, and cross references are supplied. Below will be found a list of the more common keywords used in the index. This list has been subdivided for convenience into sixteen general subjects, but the general subject headings, shown in capital letters, do not appear in the body of the index. As an example, if a reader wished to locate an article on power-driven motor trucks he would obviously look in the list under the general subject "vehicles," and of the four keywords that appear under this only "Commercial Vehicles" could apply to the article in question. The reader would therefore refer to this keyword under "C" in the body of the index.

CLASSIFIED LIST OF KEYWORDS

ACCIDENTS AND LEGAL
Accidents (including wrecks)
Accident claim department
Legislation
Legal
Public service commissions
Public service corporations

CARS
Car design
Cars (descriptive)
Cleaning of cars
Gasoline cars
Lubrication
Heating of cars
Lighting of cars
Storage battery cars
Tower cars
Ventilation of cars
Work cars
Wrecking cars

CAR EQUIPMENT
Axles
Bearings
Brakes, air
Controllers and wiring
Couplers
Current-collection
Fenders and wheel guards
Gears
Headlights
Journals
Motors
Trucks, car
Wheels

EMPLOYEES
Employees
Strikes

FARES
Fare collection (including apparatus)
Fares
Freight rates
Through routes and joint rates
Tickets
Transfers

FINANCIAL AND STATISTICS
Accounting
Appraisal of railway property
Financial
Franchises
Maps
Operating records and costs
Statistics
Traffic investigations, cities

HEAVY ELECTRIC TRACTION
Heavy electric traction
High tension d.c. railways
Interurban railways
Locomotives
Single-phase railways

MAINTENANCE OF EQUIPMENT
Cleaning of cars
Inspection of cars
Maintenance records and costs
Paints and painting
Repair shop equipment
Repair shop practice
Repair shops
Tests of equipment
Washing of cars
Welding, special methods

OPERATION
Dispatching trains
Multiple-unit trains
Operating records and costs
Passenger handling records
Rules
Schedules and time tables
Signals
Stopping of cars
Telephones
Trailer operation
Yards

POWER
Boilers and equipment
Cables
Catenary construction
Converters
Overhead construction
Poles
Power distribution
Power generation
Power stations
Purchased power
Storage batteries
Substations
Transmission lines
Trolley wire
Turbo-generators and equipment

RECORDS
Maintenance records and costs
Operating records and costs
Passenger handling records
Record forms

STRUCTURES
Bridges
Carhouses
Freight stations
Power stations
Repair shops
Terminal stations and terminals
Waiting stations

TRACK
Pavement
Rail joints and bonds
Rails
Ties
Track construction
Track maintenance

TRAFFIC
Advertising
Freight and express
Parks and pleasure resorts
Public, relations with
Publicity
Routing of cars
Signs on cars
Traffic investigations, cities

VEHICLES (not on tracks)
Commercial vehicles
Motor buses
Service and tower wagons
Trackless trolleys

MISCELLANEOUS
Fire protection and insurance
Lightning
Municipal ownership
Organization charts
Public, relations with
Standardization
Storerooms
Timber preservation

In addition to the groups of articles covered by these headings the papers and reports from electric railway and steam railroad associations are grouped under the names of the various societies. Proceedings of other associations are indexed only in accordance with the subject discussed. The heading "Cars" includes all extended descriptions of individual types of cars, but short accounts of cars displaying no important innovations appear only under the name of the railway to which they apply. Under the headings "Financial" and "Statistics" appear all articles relating generally to capitalization, earnings and operating costs, as distinguished from the detailed and highly subdivided figures that are entered under "Operating Records and Costs." Short descriptions of machine tools appear only under the heading "Repair Shop Equipment" and are not indexed alphabetically, because of the wide choice in most cases of the proper key word.

WITHDRAWN
UNIV. OF ILL.
LIBRARY

INDEX TO VOLUME XLIII

PAGES BY WEEKS.

Jan 3	pages	1 to 64
Jan. 10	"	65 to 108
Jan. 17	"	109 to 162
Jan. 24	"	163 to 216
Jan. 31	"	217 to 288
Feb. 7	"	289 to 342
Feb. 14	"	343 to 390
Feb. 21	"	391 to 440
Feb. 28	"	441 to 504
March 7	"	505 to 568
March 14	"	569 to 618
March 21	"	619 to 698
March 28	"	699 to 752
April 4	"	753 to 804
April 11	"	805 to 856
April 18	"	857 to 906
April 25	"	907 to 954
May 2	"	955 to 1018
May 9	"	1019 to 1066
May 16	"	1067 to 1126
May 23	"	1127 to 1182
May 30	"	1183 to 1238
June 6	"	1239 to 1310
June 13	"	1311 to 1370
June 30	"	1371 to 1426
June 27	"	1427 to 1486

A

Accident claim department:
——Accident-saving value of old employees, Scranton Ry. [Reilly], 1083
——Ambulance chasing denounced by ex-President Taft, 486
——Analysis of damage claims [Rice], 1084
——Board of Accident Prevention, Meeting, 1462
——Fakirs in New Jersey, 334, 1175
——Index bureau. Neglect of railways to use Hooper-Holmes Bureau [Weh], c778; Comment, 756
——Platform accidents in Moscow [Sheremetewsky], c675
——Prevention:
Accident prevention engineer, Work of [Fuller], 934
Akron, Ohio, Letters to team and automobile owners, 561, 610
Anthony N. Brady gold medal, Conditions of competition, 1037
Beaver Valley Traction Co., Campaign details, *1390; Comment, 1373
Brooklyn Rapid Transit Co. [Bullock], 711
Safety cards in school language study, 612
Buffalo International Ry., 1090
Chicago:
Public co-operation requested, 434
Use of moving pictures, 949
Dallas, Tex., Safety campaign, 1111
Denver Safety League, 746
Detroit United Ry.:
Campaign, 1060
"Safety First" instruction car, 562; [Sarvis], *595
El Paso Electric Ry., Competition between train crews, 498, 745
Folding steps in Kansas City, 815
Kansas City:
Metropolitan Street Ry., *1270
Removing possible footholds from cars, 914
Safety primer for schools, 102
Smallpox campaign, 385
Louisville Ry., "Safety First" League, 1364.
Memphis, Tenn., Safety work, 1010
Menace of the motorist, 948
Montreal Tramways, Campaign methods, 988; Comment, 955
Moving pictures. (See Moving pictures)
New Albany, Ind., Safety first results, 384
New Midland, Ohio, Safety first ideas in timetables, 157
New York:
Interborough Rapid Transit Co. [Doyle], 709; Comment, 707
Third Avenue Ry. [Maher), 708; 805
Organization for a safety campaign [Bullock], 711
Portland, Ore., Safety first signs in, *316
Public Service Ry. [Van Brunt], 712; Comment, 707
Publicity about car design to prevent serious accidents, 805
Records, Value of classified, 805
Repair shop safeguards, 66
Accident claim department: (Continued)
——Prevention: (Continued)
"Safety first" plates for cars (Grammes), *1350
Safety work and personal efficiency [Schneider], 348
Symposium on safety first movement at convention of Southwestern Electric and Gas Association, 1139
Trenton and Mercer County Traction Corp., 384
Union Traction Co. of Indiana, 851, 1362
Vienna, Moving pictures and posters, *188
Waterloo, Cedar Falls & Northern Ry., Results [Welsh, Jr.], 984
——Relations with the public, 294
——"Safety agent" instead of "claim agent" in Louisville, Ky., 291
Accidents:
——Cleveland, Increase, 53
——Detroit, Decrease, 104
——Interstate Commerce Commission report for 1913, 383, 1233
——London, 1347
——New Jersey, 497
——Maine railways, 900
——New York City, 1913, 103, 334, 497
——New York State, 497
——Ohio, 1176
——San Francisco, Observations at railway crossing, 50
Accountants' Association:
——Committees:
Life of railway physical property, Members, 45; Report, 932
Members, 416
Transportation-accounting, 727
——Conference with Interstate Commerce Commission on accounting system, 727
——Educational course in accounting, Outline of, 1214; [Tingley], c1401; Comment, 1372
——(See also Central Electric Railway Accountants' Association)
Accounting:
——Abandoned property, Accounting treatment of U. S. Supreme Court decision, Kansas City Southern R. R., 392
——Charging off obsolescence, Cleveland Ry., 424
——Cost of progress an operating charge, Kansas City Southern R.R., 392
——Course in accounting offered by Accountants' Association, 1214
——Depreciation:
Charges on equipment, Pennsylvania R.R., 981
Discussions [Alvord], 370; [Black], 235; [Byllesby], 791; [Campbell], 736
Hearing by Massachusetts Public Service Commission, 1054, 1152
Lack of provision for, by electric railways, 507
Need of explicit directions from public service commissions [Erickson], 306; Comment, 293
Ohio charges, 1472
Work of joint committee of Engineering and Accountants' Associations, 932
——Engineers' accounting knowledge [Humphreys], 366
——Factors determining a reasonable charge for public utility service [Cooley], 124
——Fares, Improved methods [Forse], c884
——"Going value," Recognition of, for rate making, Case of Kings County Lighting Company, 821
——Intangible values in settlement cases, Toronto Ry., 5
——Interstate Commerce Commission system:
Conference with Accountants' Association, 727
Criticism by Central Electric Railway Accountants' Association, 723
Discussion by committee of Accountants' Association [Wilson], c674
Discussion by various railways [Weeks, Young, Tingley], c720
Letter to accounting officers of electric railways, 588
Opinions [Davies, Bramble, Stivers, Elkins, Bigelow], c777; [Glover, Cade, Forse], c828; [Bridges], c883; [Brion], c980
Titles of accounts. Condensed classification for small carriers, 1321; Comment, 1311
——Invoice sticker, Public Service Ry., 454
——Maintenance and depreciation [Cole, Rifenberick, Connette], c881; [Wildman], c882
Lack of concerted action on part of public service commissions, 620; [Williams], c720; [Boggs], c828
New York Public Service Commission [Weber], c827
——Missouri, Uniform system, 328
——National Electric Light Association Reports, 1273
Accounting: (Continued)
——Operating expenses, Compiling [Kasemeier], 1445
——Overhead charges in valuations [Abendroth], 1434
——Power in Chicago, Chicago City Ry. [Arnold], 1152, 1249; Comment, 1127
——Repair shop, Third Avenue Ry. [Johnson], *780
——Uniformity of financial statements, Need for, 859
Advertising:
——Billboard, Illinois Traction System, *1396
——Methods [Barron and Williams], 54
——Newspaper:
Notes, 1254
Toledo criticisms requested and answered, 1250
——Posters of London Electric Ry., *1144
Agriculture:
——Development furthered by Shore Line Electric Ry., 561
——Relation of the street railway to, Discussion at Massachusetts Street Railway Association, 191
Air brakes. (See Brakes, Air)
Akron, Ohio, Northern Ohio Traction & Light Co.:
——Agreement between the city and the company, 843
——Annual report, 331
——Appraisal of property, 426
——Extension agreement terms, 601
——Franchise ordinance, Changes, 93, 146
——"Safety First" movement, Letters to team and automobile owners, 561, 610
——Terminal proposed, 940
——Wage increase, 1060
Albany, N. Y., United Traction Co.:
——Cars, Semi-steel pay-within, without bulkheads, *1030
——Conduit cutting apparatus, *89
——Express service, 611
——Service recommendations, 283; [Barnes], 1478
——Trucks lengthened to stop nosing, 143
Alberta, Can., Calgary Municipal Ry., Annual report, 1360
Albia, Ia., Southern Iowa Railway & Light Co., Incorporation, 898
Allentown, Pa.:
——Easton Consolidated Electric Co., Annual report, 1056
——Lehigh Valley Transit Co.:
Annual report, 279
Wage increase, 335
Alliance, Ohio, Stark Electric Ry., Fare collection methods, 144
Alton, Ill., Jacksonville & Peoria Ry., Sale, 1301
American Association for Labor, Legislation, Annual meeting, 27
American Economic Association, Annual meeting in Minneapolis, 36, 75; Comment, 4
American Electric Railway Accountants' Association. (See Accountants' Association,)
American Electric Railway Association:
——Anthony N. Brady gold medal, Conditions of competition for, 1037
——Attorneys' affiliated association proposed, 263
——Board of Accident Prevention Meeting, 1462
——Code of principles, 218, 237
——Committees:
Car equipment sub-committees, Meetings, 1214
Cost of passenger transportation service, Report of, 1383
Education, Meetings, 1340, 1400
Federal relations, 248, 487, 533
Joint use of poles, Report, 249; Meeting, 414
Power distribution, Meetings, 1269, 1340
Public relations, Meeting, 1268
Standard classification of accounts, 1400
——Company sections:
Denver [Casey], 826, 1215
Milwaukee, 401, 541, 1134
Plea for [Schreiber], 250; Discussion [Stearns], 417
Public Service Rys., 139, 459, 541, 1190
Washington Railway & Electric Co., 529, 1215
——Convention:
Atlantic City, Plans, 1019, 1037, *1268
"Boost the convention," 1312
Location committee, 478
——Convention of 1915, Location committee, 480
——Data sheets, Value of, 391
——Fare Research Bureau organized, 1037, 1080
Report on cost of passenger transportation service, 1383
——Membership. Opportunity of the small company, 956
——Midyear meeting, 45, 86, 135, 187; Comment, 109

(Abbreviations: *Illustrated. c Correspondence.)

American Electric Railway Association:
——Midyear meeting: (Continued)
Banquet, 234
President's address [Black], 234
Proceedings, 245
——Opportunities before the Association [Black], 6
——Protest of representatives against Rayburn bill, Hearing before Senate Committee, 1399; Comment, 1372
——Testimony of representatives, at hearing on public ownership for Washington, D. C. [Kerr], 1145; Comment, 1183; [Harries], 1193; [Rosecrantz], 1195; [Clark], 1198; [Hendershott], 1203; [Nicholas], 1204; Comment, 1184, 1242; Other testimony, 1275
American Electric Railway Claim Agents' Association. (See Claims Association)
American Electric Railway Engineering Association:
——Committees:
Block signals, Meetings, 663, 671, 1462
Equipment, Meetings, 86, 1036, 1461
Life of railway physical property:
Members, 45
Report, 932
Power generation, Meeting, 1461
Rules, Meeting, 1461
Standards, Members, 86
Various committees for 1914, 224
Way matters, Members of sub-committees, 86
——Convention, Reports of committees, 664
——Distribution of Manual, 1341
American Electric Railway Manufacturers' Association:
——Committees:
Executive, 244
Exhibit, 1340
——Meeting, May, 1039
American Electric Railway Transportation & Traffic Association:
——Committees:
Block signals, Meeting, 663, 671
Passenger traffic, Meeting, 671
Rules sub-committee, Meeting, 671
Signals sub-committee, 414
——President D. A. Hegarty, Resignation, 537
American Institute of Electrical Engineers:
——Midwinter convention:
Merits and defects of program, 441
Papers, *447
Proceedings, 520, 523
Results, 506
American Light & Traction Co. (See New York City)
American Museum of Safety, Safety medals for electric railways, 602
American Railway Association, May meeting, New York, 1150
American Railway Engineering Association,
——Convention proceedings, 719; Comment, 699
——Rails, Tests on influence of seam, Discussions [McFarland, Wickhorst], 81
American Railway Master Mechanics' Association, Convention proceedings, 1376; Comment, 1372
American Society of Civil Engineers:
——Annual meeting, 193
——Valuation for rate making, Report on, 829
American Telephone & Telegraph Co., Opposition to government ownership, 684; Comment, 681
American Water Works & Guarantee Co. (See Pittsburgh)
American Wood Preservers' Association, Annual meeting, 182, 315
Anchor, Two-piece non-creeping [Chance], *1109
Anderson, Ind., Union Traction Co.:
——Fare case, 691, 1120
——Muncie-New Castle line, *823
——Prizes for accident prevention essay, 851
——Safety first banquet, 1362
Anglo-American exposition, 480
Anthony N. Brady gold medal, Conditions of competition, 1037
Anti-trust legislation. (See Legislation)
Appraisal of railway property:
——Detroit United Ry., 600, 683
——Intangible values in settlement cases, Toronto Ry., 5
——Interstate Commerce Commission, Work of [Prouty], 365; Comment, 343
——[Jackson], 1326
——Los Angeles, Cal., 738
——Los Angeles & San Diego Beach Ry., 1052
——Northern Ohio Traction Co., Akron, O., 426
——Overhead charges in valuations [Abendroth], 1434
——Rate making by valuation [Gray], 36; Discussions, 36, 37; Comment, 4
——Report of American Society of Civil Engineers on valuation for rate making, 829
——Springfield (Mo.) Gas & Electric Co. and Springfield (Mo.) Traction Co., Abstract of brief presented to Missouri Public Service Commission, 989
——Springfield (Vt.) Electric Ry., 560
Apprentices. (See Employees)
Arbitration. (See Employees)
Arc welding. (See Welding, Special methods)
Astoria, Ore., Pacific Power & Light Co., One-man, near-side car, *1000
Atlantic Shore Ry. (See Sanford, Me.)
Auburn, N. Y., New York, Auburn & Lansing R.R., Reorganization plans, 557
Auburndale, Mass., Norumbega Park, Operating features, *411; Comment, 391
Augusta, Ga.: Arbitration award, 434
Aurora, Elgin & Chicago R. R. (See Chicago)
Austria, Electric railway statistics, 776
Automobiles. (See Motor buses)
Auto-trucks. (See Service and tower wagons)

B

Baggage shipments, C. O. D., 1444
Ballast, Report of American Railway Engineering Association, 664
Baltimore, United Railways & Electric Co.:
——Annual report, 943
——Employees' bulletin, Reasons for, 1011
——Oil and paint storage building, *868
——Pension system, 101
——Prepayment semi-convertible cars, *758
——Public relations [House], 947
——Route sign box, *143
——Track work, 91
Barre & Montpelier Traction & Power Co. (See Montpelier, Vt.)
Batavia (N. Y.) Street Car Co., Bond-selling campaign, 431
Bavarian report on steam versus electric operating costs, 811
Bay State Street Ry. (See Boston)
Bearings:
——Ball bearings for electric cars (S. K. F.), *999
——Lubrication of motor bearings [Green], *308
Beaver Valley Traction Co. (See New Brighton, Pa.)
Belfort. (See France)
Benefit plans. (See Employees)
Berkshire Street Ry. (See Pittsfield, Mass.)
Berlin, Germany:
——Elevated and Underground Ry., Subway extension, Artistic construction, *355
——Stadtbahn electrification, Experimental train, 1108
Billings (Mont.) Traction Co., Home-made fender [Johnstone], *1102
Binghamton (N. Y.) Ry., Sale, 496, 558
Birmingham, Ala.:
——Birmingham, Ensley & Bessemer R. R., Side-entrance cars, *784
——Birmingham Railway, Light & Power Co.:
Fire destroys office building, 1114
Improvements, 379
Purchase of power, 1401
Block signals. (See Signals)
Boilers and equipment:
——Cinders in flue gas, Device for removing, *1271
——Feed water purification, 1254
——Interborough Rapid Transit Co., for 30,000-kw turbines, 1
——Notes, 1189
——Operating school on Illinois Traction System, 34
——Tests with Illinois coal by National Tube Co., 316
Boise, Idaho, Idaho Railway, Light & Power Co., Receivership, 99, 431
Bond testers with saw-contact blades (Roller Smith), *682
Bonds. (See Financial)
Bonds, Rail (See Rail joints and bonds)
Boone, Ia., Fort Dodge, Des Moines Southern R. R.:
——"Don'ts" for subordinate officers, 611
——Pipe bender and pole straightener [Duncan], *781
Booster control in Paris [Jacquin], *302
Boston, Mass.:
——Bay State Street Ry.:
Findings by Commission, 208
Journal brasses, End thrust on, *591
Lawrence fare case, 947
Lynn-Salem fare reduction denied, 157
Service orders, 156
——Boston Elevated Ry.:
Arbitration with employees. Report of Board. Details of wages, hours of work and conditions of labor, 170; Comment, 165
Bulletins to employees explaining conditions and enlisting their co-operation, 807
Car-washing stands, Portable [Dermody], *419
Dividend reduction, 281
Emergency cars, List of tools carried [Dana], *1137
Financial condition of the company, Report of Arbitration Board, 171
Hours of labor, Agreement with the Amalgamated Association, 174
Investigation of service at Somerville, 1418
Labor agreements, 174, 345
Sand, Methods of obtaining and handling. Rules and report forms used [Dana], *346
Schedules and time-tables, Construction of, 1257
Signal maintenance details, *660
Stock distribution, 1476
Wages, Retroactive, 556
Wheel-press records, Graphic, Use of hydraulograph, *1287
——Boston Transit Commission:
Annual report, 96
Boston, Mass.:
——Boston Transit Commission: (Continued)
Special report, 151
Term extended, 1412
——Elevated line, Report against removal of, 150
——Fare inequalities, Comment on report of Joint Commission, 675, 754
——Merger of systems proposed, 1168, 1412
——Report of joint commission on street railway service, 675; Comment, 754
——Terminal at Post Office Square discountenanced, 1169
Bowling Green (Ky.) Railway, Sale, 57
Brake rigging, Hardened pins and special bushings [Boyer], 371
Brakes, Air:
——Cleveland Ry., Center-entrance car, 458
——Control interlock, New York, Westchester & Boston Ry., *222
——Hose specifications, Meeting of committee on, 1036
——New York, Westchester & Boston Ry., *222
——Performance on modern trains. Tests with different types of brakes on high-speed trains on Pennsylvania R. R. [Dudley], 362; Comment, 343
——Performance. Westinghouse prizes for air-brake story, 1108
Brakes, Hand, Differential staffless [Lord], *1160
Brakeshoes:
——Report at Master Car Builders' Convention, 1337
——Tests on Pennsylvania R. R. [Dudley], 363; Comment, 343
Braking cars on grades, Home-made wheel skid for [Werth], *546
Brass. (See Journal brass)
Brazil, Street railway progress at Pernambuco, 1437
Bridges:
——Indiana Union Traction Co., *823
——Replacing broken panel post under traffic, Illinois Traction System, 1433
——Report of American Railway Engineering Association, 666
Brill, J. G., Co., Annual report, 381
Bristol (Conn.) & Plainville Tramways:
——Controlling interest, 495
——Officers, 98
British Columbia Electric Ry. (See Vancouver, B. C.)
Brockton & Plymouth Street Ry. (See Plymouth, Mass.)
Brooklyn Rapid Transit Co.:
——Beveled-tie practice [Bernard], *594
——Bond issue, 946
——Coney Island & Brooklyn R. R.:
Absorbed by Brooklyn Rapid Transit Co., 57
Changes in personnel and financial matters, 206
Fare changes, 335
Granite-block paving for shallow T-rail on parked streets [Mathews], *271
Manholes, Marking location of, *730
Red lamp to protect fire extinguishers from freezing [Mathews], *545
——Construction progress, 1168
——Employees' bulletins, 798
——Fare provisions, 1233
——Fare registers on prepayment cars, Electric ringing device [Kennedy], *1047
——Financial conditions, 281
——Lubrication of motors, Evolution [Green], *308
——"Old man" for rail drilling [Taylor], *996
——Organization for a "Safety First" campaign [Bullock], 711
——Painter's rust catch-all bag, *935
——Pattern sketches on records, *195
——Rail-carrying car, *678
——Rail file for new joint work [Cram], *194
——Smoking permit, 1427
——Special work service records, 1217
——Tax burden, 797
——Tie-holder for spiking new ties [Taylor], 937
——Transfer system, 277, 385, 499, 610, 1303
——Word to patrons on consolidation, 156
Brooms, Frog, of flat wire [Paxon], 548
Buenos Aires, Argentine:
——Electric traction developments, *536
——Subway, Manganese special work, *1286
Buffalo, N. Y.:
——Buffalo & Williamsville Electric Ry. (See Williamsville, N. Y.)
——International Ry.:
Re-routing, Protest against, 60
Safety first campaign, 1090
Signs on cars, 59, 611
Spitting crusade, 283
Terminal proposed, 949
Through service between Buffalo and Rochester, 102
Time table of convenient form, 1094
Violation of safety-appliance law, 949
Buildings, Report of American Railway Engineering Association, 668
Bureau of Standards proposes co-operation between state governments, 291
Business prospects for 1914, Opinions of representative manufacturers, 131, 189, 262
Butte, Anaconda & Pacific Ry.:
——Annual report, 1230
——Electrification details, *579; Comment, 569
——Locomotives, 2400-volt d.c., *1350

(Abbreviations: *Illustrated. c Correspondence.)

Butte, Anaconda & Pacific Ry.: (Continued)
——Telephone jack boxes mounted on locomotives, 1157
——Tractor trucks, *1349

C

Cab signals (See Signals)
Cable clamps:
——Maintenance record, Union Ry., New York, *1218
——Self-tightening, *422
Cables:
——Markers for underground cable manholes, 730
——Mechanical strains in a.c. conductors, 195
Calgary Municipal Ry. (See Alberta, Can.)
California Joint committee, Report on inductive interference, 313
California Railroad Commission:
——Authority of, Decision of state supreme court, 941
——Report, 1029
Cambridge, Ohio, New Midland Power & Traction Co., Combined waiting station and salesroom, *537
Camden, N. J.:
——United Power & Transportation Co., Annual report, 846
——West Jersey & Seashore R. R.:
Annual report, 896
Wrecking car rescuing hook and ladder truck, *890
Camp organization in construction work, Augusta, Ga., 141
Canada, Electric railway statistics, 1036
Canadian-American Power Corporation authorized to issue stock, 558
Canadian Northern Ry., Electrification of Montreal tunnel and terminal. Direct-current system considered most economical [Lancaster], *572
Canadian Pacific R. R., Electrification of Selkirk Tunnel proposed, 484
Cap and cone, Willingness of manufacturers to adopt standard, 1039
Capitalization. (See Financial)
Car construction, Woods used in South Carolina, 228
Car design:
——Advantages of the small wheel, 753
——Cost of useless weight in steel cars [Brinckerhoff], c1153; Comment, 1186
——France, General Omnibus Co., *514
——[Holst], 10
——Kansas City, Clay County & St. Joseph Railway, Steel cars [Harrigan], c1278; Comment, 1239
——Maintenance of all-steel cars [Potter, See], c1212
——Milwaukee Electric Railway & Light Co., Improvements [Cross], 1397
——Monitor-deck roof, Why adhere to, 753
——New York Municipal Ry. Car of great length and width. Comparison with earlier cars, *1261, *1327; Comment, 1243, 1313
——Publicity about, to avoid serious accidents. Case of fuse scare on fully enclosed car, New York, 805
——Rapid transit cars [Brinckerhoff), 16
——Seating capacity, 907
Comparisons of New York cars, 1265
Folding seats, Kansas City, 889
Steel cars for city service, c1341; Comment, 1313
——Somnolence in car design, 294
——Stores car, Montreal, *88
——Wood posts in steel cars, Protecting, 1371
Car door-operating lever, Kalamazoo, *1405
Car equipment as seen from the pit, 571
Car lighting. (See Lighting of cars)
Car platforms, Mastic flooring, Twin City Rapid Transit Co., *48
Car steps:
——Folding:
Metropolitan Street Ry., Kansas City, 815
Michigan Ry., *1087
——Height, Discussion, 1208
——Low-step order in Connecticut, 335
Car weights:
——Chicago Rys., Cars of 1913, 114
——Comparison of weights and motor capacities, New York Municipal Ry. and other roads, 1265
Carbon brushes, Load performances of, 998
Carhouses:
——Design, Errors in, 343
——Edmonton, Alberta, Vestibule to avoid chilling of main section [Woodroofe], *510
——Fire protection, Sprinkler test at Philadelphia, *1028
——Rock Island, Ill., Tri-City Railway & Light Co., Fireproof construction, *1187
——Sand-handling apparatus, Philadelphia, *912
——Seattle Municipal Ry., *1375
Carlsbad, Austria, Railway projects, 195
Carnegie Library, Pittsburgh, 1469
Cars:
——Accumulator. (See Storage battery cars)
——Center-entrance:
Birmingham, Ala., *784
Cleveland Ry., Novel features, *455
London experience, *298, 300.
Louisville Ry., *140
Manhattan & Queens Traction Corp., *374
Cars:
——Center-entrance: (Continued)
Nuremberg-Fürther Ry., Stepless, *1162
Pittsburgh Rys., Construction details, End exit, *808
Virginia Railway & Power Company, *1095
——Chicago Elevated Ry., All-steel cars, *84
——Chicago Rys., 1913 arch-roof, light-weight, low-step, double-end cars, *112
——Combination, Seneca Falls, N. Y., *1408
——Composite construction, Ogden, Utah, *1326
——Concrete mixing, for reinforcing poles [Purinton], *833
——Derrick (See Work cars)
——Double-deck, Stepless, Columbus, Ohio [Joyce], *582; Correction, 669
——Dump (See Dump cars)
——Express baggage, Chattanooga Traction Co., *48
——Freight, Steel trailers, Michigan United Traction Co., *420
——Gasoline (See Gasoline cars)
——Instruction, Open-side, Washington Railway & Electric Co. [Wenner], *543
——Low-level, end-entrance, Third Avenue Ry., *731
——Michigan Ry., All-steel, *1087
——New York Municipal Ry. Car of great length and width. Comparison with earlier cars, 1261, *1327; Comment, 1243, 1313
——One-man near-side, Astoria, Ore., *1000
——Pittsburgh & Butler Street Ry., *168
——Prepayment, Rebuilt from combination car, Pacific Electric Ry., *46
——Prepayment semi-convertible, United Railways & Electric Co., Baltimore, *758
——Prison, Montreal Tramways, *145
——Rail-carrying, Brooklyn Rapid Transit Co., *678
——Rebuilt:
Pacific Electric Ry., *46
Pittsburgh, Center-entrance, 1217
——"Safety First" instruction, Detroit United Ry., 562; [Sarvis], *595
——Sand car, Boston Elevated Ry., *348
——Semi-steel pay-within, Albany, N. Y., New design of car, *1030
——Semi-steel prepayment, Capital Traction Co., *272
——Single-truck, Fully-inclosed, Meridian, Miss., *838
——Single-truck convertible, Union Ry., New York, *350
——Statistics concerning cars ordered in 1913, 30; Comment, 2
——Steel:
Advantages, for city service, c1463
Chicago Elevated Rys., Fireproof finish, special bolsters and center bearings, *84
Freight trailers, Michigan United Traction Co., *420
Insulation tests at University of Illinois, 992
Michigan Ry., Folding steps for center-entrance, *1087
Pennsylvania R. R., 1460
Philadelphia-Paoli line, *864
Portland, Eugene & Eastern Ry., *360
Report at Master Car Builders' Convention, 1337
——Stepless double-deck, Columbus, O. [Joyce], *582; Correction, 669
——Storage battery (See Storage battery cars)
——Stores, Steel, Montreal Street Ry., *88
Catenary construction:
——Montreal & Southern Counties Ry., *702
——Ueberetsch Ry. [Gyaros], *764
——Various designs on Philadelphia-Paoli line of Pennsylvania R. R., *860
——Vienna-Pressburg line, *190
Cedar Rapids, Ia.:
——Cedar Rapids & Iowa City Ry., Extension, 686
——Iowa Railway & Light Co.:
Eastward extension, 1073
Tornado destruction, 1053
Census bureau, Preliminary reports of electric railways, 80, 123
Center-entrance cars (See Cars)
Center plate, Oil-bearing (Steel Car Forge), *997
Central Electric Railway Accountants' Association:
——Accounting system of Interstate Commerce Commission, Report on suggested changes, 723
——Committees:
Passenger accounts, Report, 1444
Freight accounts, Report, 1444
——June meeting, Toledo, 1444
Central Electric Railway Association:
——Annual meeting, Cleveland, 477, 478
——Committees:
Executive, Members, 532
Issue of annual "Brown Book," 879
Standardization, Report, 1454
——Convention proceedings, 466, 1447, 1453, 1454
——Interurban development in the Central West and the work of the Association [Brady], 8
——Joint weight and inspection bureau, Discussion on [Crall], 467; [Sullivan], 468; [Norveil], 470
Central Electric Railway Association: (Continued)
——Secretary-treasurer, Report [Neereamer], 469
Central Electric Traffic Association:
——Business of the association [Neereamer], 1450
——Chairman's report [Neereamer], 469
——Committees, 880
Central New York Southern Ry. (See Ithaca, N. Y.)
Central Vermont Ry. (See Montreal & Southern Counties Ry.)
Centralization of power supply [Insull], 914
——London, Report [Merz and McLellan]; Comment, 955
Centralized management (See Public service corporations)
Charleroi, Pa., Webster, Monessen, Belle Vernon & Fayette City Street Ry., Strikes, 1005, 1114
Charlotte, N. C.:
——Charlotte Electric Ry., Single-truck vestibule cars, *581
——Piedmont Traction Co., Electric locomotives, *596
Chattanooga, Tenn.:
——Chattanooga Railway & Light Co. (See Lookout Mountain)
——Chattanooga Traction Co., Express baggage car, *48
——Viaduct completed, 427
Chicago:
——Aurora, Elgin & Chicago R. R.:
Gears, Stub-tooth bull-nose [Gould], *1216
Prizes to employees for efficiency suggestions, 561, 1363
——Board of Supervising Engineers, Attack on accounting procedure, Reply by B. J. Arnold, 1152, 1249; Comment, 1127; Attempt to remove George Weston, 1471
——Central-station energy for surface and elevated lines, 92
——Chicago City Rys.:
Accounting between city and company, 1111; [Arnold], 1249
Annual report, 793
Motors, Tap-field, *1407
——Chicago Elevated Rys.:
Cars, All steel. Fireproof finish, special bolsters, center bearings, *84
Financing, 1230
——Chicago & Milwaukee Electric Ry., Resale of Wisconsin Division, 608
——Chicago, Milwaukee & St. Paul Ry.:
Accounting, Compliance with rules of Interstate Commerce Commission, 607
Electrical equipment of Rocky Mountain division, *34
——Chicago & Oak Park Elevated R. R., Track elevation, 1113
——Chicago Rys.:
Annual report, 1115
Cars. 1913 low-step, double-end, arch-roof cars, *112
——Elevated lines, Traffic conditions [Seeley], 531
——Harbor and Subway Commission, Resignation of members, 149
——Manganese steel special work, Experience [Weston], c1343
——Market service, Commission to investigate interurban, 797
——Merger problem, 55, 329, 1360
Arnold's plans on rental basis accepted, 552
Engineering departmental organizations, 336
Largest system in gross earnings in the world, 505
Organization of surface lines, 210
Rental demand refused by companies, 602
——Motor-bus line proposed, 555
——Municipal Markets Commission, recommends use of interurban freight service, 1011
——Northwestern Elevated R. R., Field-control and universal type control motors, *324
——Seat for passenger ordinance during non-rush hours, 1419
——Smoke abatement committee, Report, 202
——Standard Gas & Electric Co., Annual report, 1415
——Subway matters, 151, 200, 327
[Arnold], 276
Comprehensive system defeated, 842
Rental basis, Report [Arnold and Weston], 489
——Terminal electrification, Delays, 328
——Track construction. History of experience with solid and insert manganese special track work, *970; Comment, 959; [Cram], c1040
——Track elevation in suburbs, 900
——Traction fund, 843
Christiania (See Norway)
Cincinnati, Ohio:
——Cincinnati Street Ry., Objection to loop, 425
——Cincinnati Traction Co.:
Appraisal proposed, 555
Car painting by use of portable drying oven using ordinary air-drying paints and varnishes, *444; Comment, 442
Employees. College students in shops, 130

(Abbreviations: *Illustrated. c Correspondence.)

Ciscinnati, Ohio:
——Cincinnati Traction Co.: (Continued)
Fare question, Suburban, 851
Solid and insert manganese steel special track work experience [Berry], c1099
Washing of cars, Use of instantaneous electric water heater, *47
Welded joint and rail brace, *1467
Wheel and gear testing set, *89
——Columbus, Delaware & Marion Ry., Scheme to secure employment, 1119
——Depot franchise, Revocation, 202
——Ohio Electric Ry., Repairing worn brush holders [Foote], *1045
——Ohio Traction Co., Fare case, 1061, 1364
Circuit breakers, Car [Parsons], *1283
Circuit breakers and hood switches. Equipment defects [Squier], *1344, *1403, *1465
Circular inch versus the circular mil [Hering], c589; Comment, 570
City planning, Effect of transportation, 1298
Claim department (See Accident claim department)
Claims Association, Action toward prevention of accidents, 263
Cleaning of cars:
——Disinfecting and cleaning [Lloyd], 928
——Formula for cleaner [Ingle], 677
——Suction cleaner, Home-made [Ingle], *887
Clearance for overhead third rail, Report of American Railway Engineering Association, *667
Cleveland, Ohio:
——Cleveland, Painesville & Eastern R. R. (See Willoughby, Ohio)
——Cleveland Ry.:
Accident claims increased, 53
Accounting. Charging off obsolescence, 424
Annual meeting and report, 328, 493
Center-entrance cars. Novel features, *455
Cross-town line denied, 843
Pavement plow [Clark], *1346
Protest against tax assessment, 378
Rotary converters, Sixty-cycle, Year's operating results [Crecelius], 713
Schedules, Demand for readjustment, 1053, 1175
Stock increase, 488, 683
Tickets, Three for 10 cents, suggested, 736
Welfare of employees, 1473
——Cleveland, Southwestern & Columbus Ry., Safety work and personal efficiency [Schneider], 348
——Electrical exposition, 423
——Lake Shore Electric Ry., Annual Report, 605
——Subway proposed, 148, 202
Clocks:
——Headway, Metz, Germany, *196
——Running-time terminal (Railway Improvement Co.), *547, 550
Coal. Bituminous coal strike, Effect of, 443
Coal and ash handling, Louisville Traction Co., *405
Coal bunker, Submerged concrete, Kansas City, 348
Coasting time recorders:
——Operating experiences, Interborough Rapid Transit Co., *680
——Third Avenue Ry., 550
Coffeyville, Kans., Union Traction Co., Strike, 822
Coin handling and counting, 907
Coin-handling machine (Sattley), *733
Colleges and public service, Conference in New York, 1133; Comment, 1127
Colorado Spring (Colo.) & Interurban Ry., Strike, 894
Columbus, Ohio:
——Columbus, Marion & Bucyrus Ry. (See Marion, O.)
——Columbus Railway Power & Light Co.:
Car, Stepless double-deck [Joyce], *582; Correction, 669
Welfare program, 383
——Columbus, Urbana & Western Ry. Sale, 332
Commissions on electrification proposed, 701; [Lee], c778
Commutator bars, Dental cement to fill cavities in, *730
Company sections of the National Electric Light Association, Educational work of [Martin], 518; Comment, 508
——(See also American Electric Railway Association)
Compensation law (See Employees, Workmen's compensation)
Complaints (See Public, Relations with)
Concrete mixing and placing, Indianapolis Traction & Terminal Co., *1404
Concrete-mixing car for reinforcing decayed poles [Purinton], *833
Conductivity, Electric, of exhaust gases from steam locomotives, 818
Coney Island & Brooklyn R. R. (See Brooklyn)
Congestion of traffic (See Traffic investigations)
Connecticut Co. (See New Haven, Conn.)
Connecticut Public Utilities Commission, Annual report, 1437
Constantinople, Belgian company in, 1339
Contact plow for conduit railway [Squier], *1103
Contact shoes (See Third-rail shoes)
Controllers and wiring:
——Circuit breakers and hood switches, [Squier], *1344, *1403, *1465
——Development of street railway control systems [Renshaw], 17
——Field control test in Toledo [Wynne], 1447; Comment, 1427
——Jones control system on center-entrance, end-exit cars, Pittsburgh Rys., *810
——K type, Improvements [Parsons], *418
——Maintenance of circuit breakers [Parsons], *1283
——Requirements of circuit breakers and hood switches [Squier], *1344
——Single-phase Rhaetian Ry. locomotives, *761
Converters:
——Cleveland Ry., Operating results with 60-cycle [Crecelius], 713
——Principles of design for 60-cycle [Crecelius], 713
Co-operative stores (See Employees)
Copper statistics for 1913 and prospects for 1914, 669
Corporations (See Public service corporations)
Cost of living (See Employees)
Couplers:
——Cleveland, Ry., Center-entrance car, *458
——M. C. B., New standard, 1337, 1372
——Tests at University of Illinois for Scullin-Gallagher Iron & Steel Co., 890
Covington, Ky., South Covington & Cincinnati Street Ry. Injunction concerning franchise tax dissolved, 555
Creosoting (See Timber preservation)
Crossing, Track, T-rail steam road, Kansas City, *1406
Crossing-gate, Remote-control (Cook), Southern Pacific Ry., *422
Crossing signals (See Signals)
Cross-ties (See Ties)
Current collection:
——Contact plow for conduit railways [Squier], *1103
——Maximum wear from trolley wheels, Rockford, Ill. [Ingle], *592
——Rail elevation and pantographs, 1428
——Splicing broken poles [Ingle], 936
——Third-rail shoe, Detachable [Potter], *1102
——Third-rail shoe maintenance [Squier], *993
——Trolley base defects [Squier], *831
——Trolley wheel defects [Squier], *543
Cuspidors for motormen, 746

D

Dallas, Tex., Safety campaign, 1111
Dalrymple, James, on American railway conditions, 490
Danbury (Conn.) & Harlem Traction Co., Sale, 154
Data sheets, American Electric Railway Association, Value of, 391
Davenport, Ia., Tri-City Railway & Light Co., Carhouse at Rock Island, Ill., *1187
Delaware & Hudson Co., Annual report, 1007
Delaware & Hudson R. R., Strike settlement, 163
Delta Electric Light & Traction Co. (See Greenville, Miss.)
Denver (Colo.) City Tramway:
——American Electric Railway Association section work [Casey], 826
——Safety league, 746
——Storm effects, 158
——Taken over by Denver Tramways, 848
Depreciation (See Accounting)
Derailments:
——Correcting troubles from maximum traction trucks [Williams], 782
——Derailments at facing point switches, *676; [George], *728
Derrick cars (See Work cars)
Des Moines (Ia.) City Ry.:
——Cleaning and disinfecting of cars [Lloyd], 928
——Franchise proposed, 1472
——Wage readjustment, 603
Detroit, Mich.:
——Annual reports of various lines, 380
——Detroit Municipal Street Railway Commission, Dean Cooley as counsel, 940
——Detroit United Ry.:
Accidents, Decrease in, 104
Appraisal, 600, 683
Capital expenditures, 150
Coil-baking oven [Keller], *1464
Dogs on cars, 102
Express and freight service methods, trucks and warehouses, *1022
Extensions, 1052
Fares, Effect of low rate upon riding habit [Fullerton], 770
Handling the Ford employees, 208
Hutchins replies to commission, 1296
Publicity work [Van Zandt], c1279
Relation with city. Company called "Ancient adversary" by the Mayor, 217
Repair shops, Fireproof, *1314
Safety campaign, 1060
"Safety First" instruction car, 562; [Sarvis], *595
Service difficulties, 433
Sign, Illuminated train number, *49
Vestibules, Larger, 1304
Waste paper, Handling of, 1256
Detroit, Mich.: (Continued)
——Subway system suggested, 1113
Diesel engine economies, 930
Direct-current railways (See High-tension, direct-current railways)
Dispatching of trains:
——Headway recorder [Nachod], *598
——Megaphone, Use of, 1427
——Telegraph versus telephone [Clapp], 637
——Telephone system, Rochester, N. Y., *888
——Terminal clock for registering running time, *547
District of Columbia (See Washington, D. C.)
Dogs on cars, Detroit United Ry., 102
Doors on cars, Patent decision, 894
Double-deck cars (See Cars, Double-deck)
Dublin, Ireland, Strike, 1225
Dubuque, Ia., Union Electric Co., Tower wagon with removable tower, *483
Duluth (Minn.) Street Ry., Franchise decision, 1298
Dump cars, Steel multiple, motor-operated, Connecticut, *197

E

Earnings (See Financial)
East St. Louis (Ill.) & Suburban Ry.:
——Concrete reinforcement of poles [Purinton], *833
——Reorganization, 206
Easton Consolidated Electric Co. (See Allentown, Pa.)
Edmonton (Alta.) Radial Ry.:
——Carhouse and shops, New, *510
——Electrolysis prevention. Rules of the British Board of Trade and their application in Alberta. Consideration of several plans from the economic standpoint [Woodroofe], *920
——Labor conditions under municipal ownership, 571
——Report on financial difficulties. Reasons for deficits and increase in fares, 1334
——Track construction [Saunders], *878
Education, Popular (See Publicity)
Efficiency engineering in shops of the Milwaukee Electric Railway & Light Co., *631
Efficiency exposition and conference, First national, New York City, 423
Electric lamps (See Lighting of cars)
Electric Railway Journal:
——Efforts for the railway industry, 1
——Equipment and its maintenance department, 65
——Semi-annual index, 1427
Electric vehicles (See Motorbuses; Service wagons)
Electrified steam railroads (See Heavy electric traction)
Electrolysis:
——Edmonton, Alta., Rules of British Board of Trade and their application in Alberta. Consideration of several plans from the economic standpoint [Woodroofe], *920
——Fundamental facts regarding [Wyer], c1211
——[Ganz], c933
——Joint committee of national associations formed, 1428
——[Kittredge], c541
——National joint committee, February meeting in New York, Scope of work, 763
——[Rosa and McCollum], *39; Comment, 1
——Springfield, Ohio. Methods for mitigating damage [Rosa and McCollum], *225; c369; Comment, 345; Tests, 646; Corrections, 722
——Test on a system of insulated negative feeders in St. Louis [Rosa, McCollum and Logan], *116; Comment, 109 [Townley], c1100
Eliot, Charles W., on trades unions, 378
Elmira (N. Y.) Water, Light & Railroad Co., Sale of stock, 559
El Paso (Tex.) Electric Ry.:
——Accident reduction campaign, 498
——Energy meters on cars. Success of [Morse], 1206
——Safety competition between train crews, 745
Emergency cars (See Tower cars; Work cars)
Emergency wagons (See Service wagons)
Employees:
——Accident-saving value of old employees, Scranton Ry. [Reilly], 1083
——Apprentice training:
New York State Rys. [Cameron], c722
Progress in [Roberts], c539
Value of system, 393
——Arbitration of difficulties:
Augusta, Ga., 434
Boston Elevated Ry., Report of Board, 170; Comment, 165
Indianapolis, 52, 398, 1175
Middlesex & Boston Street Ry., 893, 1418, 1472
Northampton, Mass., 685, 739, 841, 851, 1411
Pittsburgh, 1175
Terre Haute, Indianapolis & Eastern Traction Co., Working agreement, 542
Versus strikes, Comment on report by Amalgamated Association, 753
——Bulletins for, Brooklyn, 798
——Camp organization in construction work, Augusta, Ga., 141

Employees: (Continued)
——College students in railway shops, Cincinnati Traction Co., 130
——Co-operation of, Enlisting. Methods of progressive railway managers, 807
——Co-operative stores in New York City, Results of operation, 367
——Cost of Living, Report of Boston Arbitration Board, 170
——Cuspidors for motormen, 746
——"Don'ts" for subordinate officers, Ft. Dodge, Des Moines & Southern Ry., 611
——Education. Contagion of ambition and co-operative education, 757
——Educational work of company sections:
American Electric Railway Association, at Milwaukee and Newark, 541
National Electric Light Association [Martin], 518; Comment, 508
——Efficiency suggestions, Prizes for, Aurora, Elgin & Chicago R. R., 561
——Enthusiasm essential to personal progress [Gove], c539
——Hours of labor, Boston Elevated Ry., Agreement, 174
——Ideal supervisory officers, 1019
——Indiana liability act interpreted, 1357
——Insurance:
Pittsburgh Rys., 433
Sickness insurance, Practicability [Chamberlain], 27
Third Avenue Railway, New York City, 66
United Railroads, San Francisco, 201
——Labor agreements, Boston Elevated Ry., 345
——Labor legislation [Crownhart], 27; [Tingley], 251
——Liquor Protest against sale of, Pittsburgh, 850
——Loan fund, Interborough Rapid Transit Co., 948
——Making opportunities, 701
——Municipal ownership, Labor conditions under, 571, 805
——Pensions, United Railways & Electric Co., 101
——Piece-work system in repair shop, Third Avenue Ry., 373
——Premium system of Milwaukee Electric Railway & Light Co., 632
——Premiums for reducing coal consumption, Topeka, Kan., 384
——"Right job for the man." Study of individual adaptability, 505
——Roll of honor, Pennsylvania R. R., 352
——Salaries on Seattle Municipal Ry., 1375
——School for steam boiler operators, Illinois Traction System, 34
——Steady employment a factor in wages, 907
——Strikes (See Strikes)
——Time distribution, Milwaukee Electric Railway & Light Co., 633, 637
——Training:
Co-operative system proposed [Wilson], c589
Pennsylvania R. R., Results of systematic promotion, 651
Platform men, Public Service Ry. [Coe], 1190; Comment, 1240
Young men for railway work [Basford], 292
——Wages:
Boston Elevated Ry., Report of Arbitration Board, 173
British and American railways, 134
Danville, Ill., Increase, 791
Des Moines City Ry., 603
Grand Rapids, Mich., Increase, 1176
Indianapolis, Ind., 398, 740
Lehigh Valley Transit Co., Increase, 335
Northampton, Mass., 1304, 1411
Northern Ohio Traction & Light Co., Increase, 1060
Public Service Ry., Increase, 60
Steady employment a factor in fixing wages, 907
Terre Haute, Indianapolis & Eastern Traction Co., 542
——Welfare work:
Cleveland Ry., 1473
Columbus Railway, Power & Light Co., 383
Interborough Rapid Transit Co., 465
Public Service Ry. [Donecker], 416
——Workmen's compensation:
Kansas rulings, 1027
Kentucky act, 1003
New York law, 1051
Report by National Civic Federation, 601
Spread of legislation, 791
Engineering organization in the United States, Status of [McDonald], 1343
Engineers:
——Accounting knowledge desirable [Humphreys], 366
——Making opportunities, 701
——Members of public service commissions [Humphreys, Sague and Gibbs], 126; Comment, 109
England (See Great Britain)
Equipment defects [Squier], 318, *543, *779, *993, *1103, *1344, *1403, *1465
Erie R. R., Electrification plans, 942
Erie & Central Pennsylvania Ry. (See Titusville, Pa.)
European railway electrification [Gibbs], 11
Evanston (Ill.) Ry., Bond issue, 154
Explosives, Safe transportation of, 1150
Express (See Freight and express)

F

Fairmont, W. Va., Monongahela Valley Traction Co., Stock bonus, 209
Fall River, Mass., Investigation of traffic congestion, Report by D. C. & Wm. B. Jackson, *816
Fan for operation with shafting [Parsons], 1347
Fare boxes, Ticket receptacle [Johnson], *599
Fare collection:
——Front-end system, Kansas City, 383, 569
——Novel method, Alliance, Ohio, 144
Fare registers, Electric ringing device on prepayment cars, Brooklyn Rapid Transit Co., *1047
Fare Research Bureau, American Electric Railway Association, 1037, 1080
Fares:
——Accounting methods, Improved [Forse], c884
——Cincinnati suburban fare case, 1364
——Cost of passenger transportation service, Report of American Electric Railway Association committee, 1383
——Detroit United Ry., Effect of low rate upon riding habit [Fullerton], 770
——Discrepancy on different lines. Value of explanation to the public, 806
——Freight rate increase, Proposed, and the Interstate Commerce Commission, 291
——Indiana fare case decision, 691
——Inequalities in large cities, Comment on report of Boston Joint Commission, 675, 754
——Investigation of economics of fare unit at Massachusetts Institute of Technology, 587
——Kansas changes, 1480
——Low fares, Do they increase riding? [Fullerton], 770
——Milwaukee, 148, 256
——Norfolk, Va., Investigation, 1443
——Oregon cases, 1119
——Portland, Oregon, Ordinance declared void, 334
——Rate of fare as affected by riding habit [Hild], 229; Discussions, [Coates], 247; [Nash], 253, 315; [Stearns], 255; Comment, 218
——Seattle Municipal Ry., Ordinance, 1375
——Toledo complications (See Toledo Railways & Light Co.)
——Vancouver, B. C., 1479
——Wisconsin railway conditions, 163
——Zone system:
Glasgow, Statistics, 231
Milwaukee Electric Railway & Light Co., Suburban territory, *185
——(See also Tickets)
Federal Light & Traction Co. (See New York City)
Feed water purification, 1254
Fenders and wheel guards:
——Home-made fender, Billings, Mont. [Johnstone], *1102
——Interborough Rapid Transit Co., *709
Financial:
——Capitalizing prospects in reorganizations, 431
——Census figures, Preliminary, for electric railways of 1913, 671
——Charge for public utility service, Factors determining [Cooley], 124
——Charitable donation by Kansas City receivers, 110
——Corporate financing during 1913, 98
——Corrections of the street railway situation [Gay], 14; Comment, 3
——Cost of construction, Seattle Municipal Ry., 1374
——Cost of passenger transportation service, Report of American Electric Railway Association committee, 1383
——Cost of various types of steel cars, 1267
——Earnings of London tube railways, 297
——Electrification costs in Switzerland, 659
——Holding companies:
Advantages and disadvantages [Ford], 23
Bill in Congress, 685
Lectures at New York Young Men's Christian Association, 684
Testimony at Washington by representatives of public utility companies [Flexner, Gibboney, Beekman], 1098
Views of the Federal administration, 217
——Increased cost of railway operation [Eldridge], 7
——Justice for the railroads, 770
——Operating ratio, Value of, 1241
——Operating results in Toledo as applied to three-cent fare, 772
——Philadelphia subway and elevated lines, Estimated cost and earnings, 76
——Prospects for 1914, Opinions of representative manufacturers, 131, 189, 262
——Public utility investments [Gardiner], 1008
——Rayburn bill in Congress, Protest of electric railway representatives, 1399; Comment, 1372
——Reasonable return on an investment, Cost of money to California public utilities [Hockenbeamer], 1074; Comment, 1067; [Woodward, Nash], c1153; [Foster], c1278; [Gardiner], c1279
——Receivership and foreclosure statistics for 1913, 33
——Selling securities direct to the public, Third Avenue Ry., 494, 507, 607
——Short-term financing and equipment trust certificates, 344
——Treasury stock, What is, 1372
——Uniformity in financial statements, Need of, 859
Fire equipment located on walls by red stripes [Boyce], 592
Fire extinguishers, Red lamp used to protect, from freezing [Mathews], *545
Fire protection, Sprinklers in carhouse, Test by Philadelphia Rapid Transit Co., *1028
Floors, Shop, Report of American Railway Engineering Association, 668
Flue gas, Device for removing cinders, *1271
Fonda, Johnstown & Gloversville R. R. (See Gloversville, N. Y.)
Form for curved field coils [Comstock], *681
Fort Dodge, Des Moines & Southern R. R. (See Boone, Ia.)
Foundations, Testing for seams in rock, Augusta, Ga., 181
France:
——Belfort meter-gage, single-phase railway, 1323
——Results of public ownership, 1021
Free rides for policemen, firemen and letter carriers, Illinois, 798
Free transportation, Decision of Pennsylvania Public Service Commission, 432, 900
Freight and express:
——Agriculture in relation to street railways, 191
——Albany, N. Y., 611
——Chicago Markets Commission, Report, 1011
——Contracts with old-time express companies, Desirability of, 79
——Detroit United Ry., Methods employed and service rendered, *1022
——Discussion [Neereamer], 1450
——Illinois Traction System, 1480
——Joint weight and inspection bureau discussed by Central Electric Railway Association, 467, 468, 470
——Milk tag, Terre Haute, Indianapolis & Eastern Traction Co., *550
——Philadelphia Rapid Transit Co., 384
——Pittsburgh, Harmony, Butler & New Castle Ry., Freight schedule and new form of waybill [McIntire], *1034
——Waterloo, Cedar Falls & Northern Ry., 1060
——Waupaca Electric Light & Railway Co., 498
Freight houses, Detroit United Ry., Plan, *1023
Freight rates [Neereamer], 1450
Fuse-testing board, Third Avenue Ry. [Parsons], *319

G

Galt, Preston & Hespler Ry. (See Preston, Ont.)
Garbage cars [Orenstein-Koppel], *1349
Gary (Ind)., Hobart & Eastern Traction Co., Reconstruction, 602
Gas-electric cars. (See Gasoline cars)
Gasoline cars:
——Beach, with battery auxiliary, 1347
——Central New York Southern R. R., 1409
——India tramways, 307
——Louisiana & Texas lines, *144
——Minneapolis & Northern Gasoline Motor Ry., *1469
——Pieper system, Trial service, Paris, *1288
Gates between cars, Collapsible, Portland Railway Light & Power Co., Boynton, *677
Gear cases, Rivetless [Chillingworth], *1468
Gears:
——Comparison of gears and pinions for city, heavy and interurban traction, American order for England, *486
——Fits [Litchfield], *320
——Formula for press fits [Litchfield], 320
——Ratios, Influence on power consumption, 811
——Stub-tooth bull-nose [Gould], *1216
Geary Street Municipal R. R. (See San Francisco)
General Electric Co., Annual report, 944
Geneva, Seneca Falls & Auburn R. R. (See Seneca Falls, N. Y.)
German Street & Interurban Railway Association, Executive committee report, 128
Germany:
——Berlin:
Elevated & Undergound Ry., Artistic construction of subway, *355
Stadtbahn electrification, Experimental train, 1108
——Nuremberg-Further Ry., Center-entrance stepless cars, *1162
Glasgow Corporation Tramways, Report on American railways [Dalrymple], 490
Gloversville, N. Y., Fonda, Johnstown & Gloversville R. R., Sacandaga Park, Old and new features [Colt], 927
Going value. (See Accounting)
Goldsboro (N. C.) Traction Co., Sale, 99

Government ownership. (See Municipal ownership)
Grand Rapids, Mich.:
——Grand Rapids Ry.:
Snow scraper, Two-section steel-blade, *549
Wage increase, 1176
——Michigan & Chicago Ry., Construction progress, 686
——Michigan Ry., All-steel cars with folding steps for center entrance, *1087
Great Britain:
——Electrification schemes, 790
——Great Eastern Ry., American manager appointed, 393
——Lancashire & Yorkshire Ry.:
Electrification, 584
Proposed expenditure, 650
——London:
Accidents due to cars and other vehicles, 1347
Centralized power supply, Report [Merz and McLennan], Comment, 955
Letters from, 51, 325, 551, 787, 1292
London Electric Ry., Spring posters, *1144
Rapid transit progress. Consolidation of transit facilities. Traffic statistics. Experiments with center-door cars, *296
Underground Rys., Ventilation of tunnels, 930
——London County Council Tramways, Annual report, 790
——London & Northwestern Ry., Electrification of suburban lines, 349
——Trackless trolley double-deck bus, Brighton, Eng., *783
Great Eastern Ry. (See Great Britain)
Greenville, Miss., Delta Electric Light & Traction Co., Purchases, 1173
Ground detectors for a. c. rolling stock, New York, Westchester & Boston Ry. [Longhurst], *729

H

Halifax, N. S., Nova Scotia Tramway & Power Co., Incorporation, 795
Hardware. (See Repair shop practice)
Harrisburg (Pa.) Rys., Arch-roof cars without body doors, *91
Hartford, Conn., Waiting station, *966
Harvard University, Engineering department merged with that of Massachusetts Institute of Technology, 150
Havana, Elevated railway franchise, 894
Haverhill, Mass., Massachusetts Northeastern Street Ry., Canobie Lake Park, Salem, N. H., Operation details, *576
Hazleton, Pa., Lehigh Traction Co., Strike, 201, 894
Headlights, Pressed steel, with welded joints (Esterline), *998
——Report of Master Mechanics committee, 1377
Headway recorder [Nachod], *598
Heating of cars:
——Cleveland Ry., Center-entrance car, 457
——Non-bulkhead and platform prepayment types compared, 619
——Novel type of heater in Berlin, 1103
Heavy electric traction:
——American railways, Discussion at New York Railroad Club, 705
——American railways, Foreign view of [Dawson], 762
——Bavarian report on steam versus electric operating costs, 811
——Bombay, India, 446
——Canadian Northern Ry., Direct-current system for Montreal tunnel and terminal [Lancaster], *572
——Canadian Pacific R. R., Proposed for Selkirk Tunnel, 484
——Chicago, Milwaukee & St. Paul Ry., Electrical equipment, *34
——Christiania-Drammen Ry., Norway, Electrification approved, 50
——Discussion by New York Railroad Club, 705
——European conditions [Gibbs], 11
——Gothard tunnel. (See below, Switzerland)
——Lancashire & Yorkshire Ry., 584
——"Light wanted on electrification decisions," 65
——London & Northwestern Ry., Suburban lines, 349
——London & Port Stanley Ry., 96
——Melbourne, Australia, 274
——Norwegian report on electrification, 523
——Pennsylvania R. R. [Gibbs], 705
——Review of work of electrification during 1913 [Burch], 129
——Rhaetian Ry., Single-phase system, *760, *1430
——Stadtbahn electrification, Experimental train, 1108
——Switzerland [Huber-Stockar], 717; Discussion, 705
Proposed electrification, 188
Report of Electrification Commission. Single-phase operation favored [Wyssling], *524; Comment, 508
Supplementary report to the Administration Council of the Federal State Railways [Dinkelmann], 657
——Systems for main line electrification [Vaughan], c193
Heavy electric traction: (Continued)
——Technical commissions on electrification proposed, 701; [Lee], c778
——Ueberetsch Ry., 1200-volt system [Gyaros], *764
——Usui-Toge Ry., Japan, *1393
——(See also High-tension direct-current railways; Single-phase railways)
High-tension current-direct railways:
——Butte, Anaconda & Pacific Ry., *579; Comment, 569
——Canada, First interurban, Toronto to Berlin, 1162
——Canadian Northern Ry., Montreal tunnel and terminal [Lancaster], *572
——Oakland, Antioch & Eastern Ry., Locomotives, *785
——Pittsburgh & Butler Street Ry., Change from single-phase to 1200-volt direct current, *166
——Salt Lake & Utah R. R., *87
——Ueberetsch Ry., 1200-volt system [Gyaros], *764
Hoists, Portable electric (Northern), *733
Holding companies. (See Financial)
Holyoke, Mass., Rail joint, Combination shrunk-on and welded [Pellissier], *323
Honolulu Rapid Transit & Land Co., Annual report, 896
Hooper-Holmes Index Bureau [Weh], c778; Comment, 756
Hudson & Manhattan R. R. (See New York City)
Hungary, Ueberetsch Ry., 1200-volt d. c. system [Gyaros], *764

I

Idaho Railway, Light & Power Co. (See Boise, Idaho)
Illinois Electric Railways Association:
——Annual meeting, Springfield, Ill., 585
——May meeting, Proceedings, 1134, 1459
Illinois Public Utilities Commission:
——Authority questioned, 942
——Methods of [Norton], 586
Illinois Traction System. (See Peoria, Ill.)
Illumination of cars. (See Lighting of cars)
Inclined railway, Lookout Mountain Ry., *820
Index bureau. (See Accident claim department)
India:
——Electrification plans in Bombay, 446
——Gasoline tramways, 307
Indiana arbitration board, 1175
Indiana Union Traction Co. (See Anderson, Ind.)
Indianapolis, Ind.:
——Indianapolis Street Ry., Annual meeting, 897
——Indianapolis & Louisville Traction Co., I. C. C. case against, 1481
——Indianapolis Traction & Terminal Co.:
Fairview Park, Developments, *516
Strike:
Arbitration decison, 146, 368, 398, 488
Company's side presented, 52
Concrete mixing and placing, *1404
Testimony of company, 94
——Interurban development, Statistics, 158
——Passenger traffic out of the city, Statistics, 744
——Terminal station, Decision of commission concerning, 1231
——Terre Haute, Indianapolis & Eastern Traction Co.:
Agreement with employees, Attempt to break, 94
Annual report, 742
Milk tag, *550
Wage increase, 740
Working agreement and permanent arbitration board, 542
Inductive interference. (See Transmission lines)
Inspection of overhead construction in Wisconsin, 175
Inspection of rolling stock [Hanf], 725; [Lambert], 1459
Inspection tests to locate incipient defects [Ransom], 1282; Comment, 1371
Instruction of trainmen. (See Employees)
Instrument posts for control outfits (Westinghouse), *548
Insulation tests for steel cars, University of Illinois, 992
Insulators:
——Line and strain (Electrose), *50
——Report of American Institute of Electrical Engineers, 452
Insurance. (See Employees)
Interborough Rapid Transit Co. (See New York City)
International Electrical Congress, Publicity meeting, New York, 523
International Engineering Congress, Subjects to be treated, 1211
International Railway. (See Buffalo)
Interstate Commerce Commission:
——Accident bulletin, 1233
——Accident report for 1913, 383
——Accounting system:
Compliance with rules, 607
Conference with Accountants' Association, 727
Criticism by Central Electric Railway Accountants' Association, 723
Discussion by committee of Accountants' Association [Wilson], c674
Interstate Commerce Commission:
——Accounting system: (Continued)
Discussion by various railways [Weeks, Young, Tingley], c720
Letter to accounting officers of electric railways, 588
Opinions [Davies, Bramble, Stivers, Elkins, Bigelow], c777; [Glover, Cade, Forse], c828; [Bridges], c883; [Brion], c980
Titles of accounts. Condensed classification for small carriers, 1321; Comment, 1311
——Annual report, 53
——Appointment of W. M. Daniels, 858
——Control over books and records of common carriers, Question of, 1067
——Freight rate increase, 291
——Jurisdiction over electric railways, Proposed increase of. Hearing of railway managers at Washington [Brady, Schoepf, Perry, Weadock, Fischer, Henry, Potter], 533
——Pass evil, Attitude toward, 441
——Railroad valuation, Work of commission [Prouty], 365; Comment, 343
Interstate regulation. (See Public service corporations)
Interstate trade commission bill in Congress, 1067
Investments. (See Financial)
Iowa "Blue-Sky" Act unconstitutional, 281, 426
Iowa, Interurban railway development, 899
Iowa Railway & Light Co. (See Cedar Rapids, Ia.)
Iowa Street & Interurban Railway Association, Convention, 928, 982
Iron production. Pig-iron in 1912 and 1913, 704
Italy, Labor troubles succeed in raising wages and establishing pensions, 805
Ithaca, N. Y.:
——Central New York Southern Ry., Incorporation, 847; Gasoline motor cars, 1409
——Ithaca Street Ry., Reorganization plans, 557
——Reorganization plan of Ithaca companies, 846

J

Jacks:
——Emergency (Duff), *1351
——Order requiring lifting jacks, Pennsylvania, 1298
——Philadelphia, Jacks on cars, 739
Jackson, Mich., Michigan United Traction Co.:
——Cars, Steel freight trailer, *420
——Issue of notes, 1476
——Oil record system, *1346
——Snow removal equipment, *483
Jackson (Miss.) Light & Traction Co., School tickets, 336
Jacksonville, Fla., Owl cars operated by city power, 328
Jacksonville & Peoria Ry. (See Alton, Ill.)
Japan:
——Electrical progress, 1049
——Usui-Toge Ry., Electrification details, *1393
Jerusalem, Electric development in, 890
Joint weight and inspection bureau, Discussion on [Crall], 467; [Sullivan], 468; [Norveil], 470
Journal brass:
——Discussion concerning M. C. B., *220, *224; Comment, 219; [Brinckerhoff, Pomeroy], c369; Comment, 343; [Evans], c417; Comment, 391; [Taylor, Holst, Boynton], c479
——End thrust on, *591
——Special journal brass on New York, Westchester & Boston Ry., *224; [Brinckerhoff], c*540

K

Kansas City, Mo.:
——Automobile ordinance, 433
——Entrance to city, Company differences, 612
——Five-cent fare into city, 384
——Kansas City, Clay County & St. Joseph Ry.:
Bond issue, 848
Cars, Center-entrance steel [Harrigan], c1278; Comment, 1239
Safety emblems for employees, 1304
Waiting stations secured in novel manner, 1304
——Kansas City Rys., Incorporation, 1355
——Kansas City Southern R. R., Accounting treatment of abandoned property, Decision of U. S. Supreme Court, 392
——Metropolitan Street Ry.:
Accident prevention by removing possible footholds on cars, 914
Buttons and service marks, 103
Campaign against smallpox, 385
Car seats, Folding, 889
Car steps, Folding, 815
Coal bunker, Submerged concrete, 348
Concession to suburban residents, 157
Contribution to Student Volunteer Convention, 103, 110, 157
Crossing, T-rail, for steam road, *1406
Depot line proposed, 378
Differences over operating agreement, 425

Kansas City, Mo.:
——Metropolitan Street Ry.: (Continued)
Fare collection, Front-end system, 383, 569
Franchise negotiations, 95, 150, 1002, 1050, 1068, 1110, 1165, 1224, 1297, 1412, 1472
Mileage on deviations from schedule, Method of keeping, *423
Petition to determine exact status, 275
"Safety First" campaign, *1270
Signs on cars, 746, 1012
Stenographers for division superintendents, 433
Stopping of cars, Alternate, 850, 908
Taken over by Kansas City Rys., 1355
——Safety primer for schools, 102
——Terminal and viaduct questions, 738
——Trade trips, 900
Kansas tax assessments, 1354
Kings County Light Co. (See New York City)

L

Labor. (See Employees)
Labor agreements. (See Employees)
Lackawanna & Wyoming Valley R. R. (See Scranton, Pa.)
Lake Shore Electric Ry. (See Cleveland, O.)
Lamp cluster for controller and motor work, Flexible [Parsons], *887
Laredo (Tex.) Electric & Railway Co., Change in ownership, 382, 427
Legal:
——Abrogation of existing contracts for increased rates, Georgia decision, 1113
——Charters, ordinances and franchises, 839, 1163, 1290
——Cost of progress and operating charge, Kansas City Southern R. R., 392
——Liability for negligence, 839, 1164, 1290
——Loan decision in Philadelphia, 1165
——Michigan Supreme Court decision on Verdier act, 275
——Prepayment-car patents, Status of [Casey], c1462
——Respective rights of street cars and automobiles, Toronto, Ont., 562
——Transfers, Nebraska decision, 1012
Legislation:
——Anti-trust legislation [Tripp], 409, 685, 893, 1357
——Bills in Congress, Action of committee on federal relations of American Electric Railway Association, 487
——Electric railway, in various states, 277, 379, 427, 492, 556, 603, 687, 740, 792, 844, 895, 1357, 1474
——Governor's message, 138
——Influence of labor [Tingley], 251
——Michigan "Blue Sky" law unconstitutional, 281
——Testimony at Washington on holding companies. Testimony at Washington by representatives of public utility companies [Flexner, Gibboney, Beekman], 1098
——Water-power legislation, 1400
Lehigh Traction Co. (See Hazleton, Pa.)
Lehigh Valley Transit Co. (See Allentown, Pa.)
Letter carriers, Transportation in Tacoma, Wash., 433
Lexington, Ky., Kentucky Traction & Terminal Co.:
——Fare increase, 1363
——Office building, *1267
Life of railway physical property, Work of joint committee of Engineering and Accountants' associations, 932
Lighting of cars:
——Cleveland Ry., Center-entrance car, 458
——Discussion by New England Street Railway Club, 986
——Storage-battery, New York Central, *1255
——Tungsten lamp fixtures (Dayton), *1288
Lightning arrester hangers (E. S. S. Co.), *1351
Lightning arresters:
——Electrolytic, with charge-and discharge resistor (Westinghouse), *836
——Home-made car arrester [Gaw], *1402
Liquor advertisements barred fom cars, West Penn Traction Co., 1364
Little Rock, Ark., Ordinances in interests of interurban lines, 60
Liverpool Tramways, Statistics, 1097
Locomotive construction, Use of heat-treated steel, 1376
Locomotive headlights, Report of Master Mechanics' committee, 1377
Locomotive shops, Electric, Van Nest, N. Y., New Haven Road, Arrangement and equipment, *623; Comment, 619
Locomotive stokers, Automatic, Report of Master Mechanics' committee, 1376
Locomotives, Electric:
——(Baldwin-Westinghouse), Galt, Preston & Hespler Ry., Preston, Ont., 375
——Butte, Anaconda & Pacific Ry., 2400-volt d. c. with separate tractor trucks for switch service, *1349
——Design [Armstrong], 13
——Development of the mine locomotive [Eaton], 826
——High accelerating tests in suburban service, 1429
——Loetschberg Ry. [Huber-Stockar], 717
Locomotives, Electric: (Continued)
——New York, New Haven & Hartford R. R., Switching locomotive at Harlem yards, *1159
——Norfolk & Western Ry. [Gibbs], 705; [Storer], 706
——Oakland, Antioch & Eastern Ry., 1200-volt, high-speed, *785
——Panama three-phase towing, *835
——Piedmont & Northern Lines, *596
——Quebec Railway, Light & Power Co., Home-made locomotive, *1132
——Rhaetian Ry., Switzerland, Single-phase, 273, *760, *1430
——Split-phase, Discussion at New York Railroad Club, 706
——Usui-Toge Ry., Japan, *1393
——Vienna-Pressburg line, *190
Loetschberg Ry., Experience with single-phase, *529
London. (See Great Britain)
London, Ont.:
——London & Port Stanley Ry., Electrification progress, 96, 1298
——London Street Ry., Prepayment car operation, 336
——Sunday operation, 102
Long Island Ry. (See New York City)
Lookout Mountain Ry., Construction details [Reed], *819
Los Angeles, Cal.:
——Congestion relieved, 851
——Los Angeles Ry.:
Fare reduction, 900
Report [Damon and Mohler], 149
——Los Angeles & San Diego Beach Ry. (See San Diego, Cal.)
——Pacific Electric Ry.:
Car, Combination, Rebuilt for prepayment service, *46
Elevated tracks at Sixth Street depot, 1138
Laborers scarce, 941
Manganese steel special work, Experience [Johnson], c1099
Motion pictures for instructions on rules, 578, *769; Comment, 753
Shelters, Concrete, *90
——Rail ordinance, 329
——Valuation of street and interurban railways, 738
Louisville, Ky.:
——Employees, Effort to organize, fails, 1055
——Jovian League, 1395
——Louisville & Interurban R. R., Campaign with truck gardeners, 104
——Louisville & Northern Railway & Light Co. (See New Albany, Ind.)
——Louisville & Southern Indiana Traction Co. (See New Albany, Ind.)
——Louisville Ry.:
Annual report, 845
Center-entrance car, *140
"Safety First" League, 1364
——Louisville Traction Co., Power station constructed according to the unit system, *402, *716
——Spitting crusade, 335
Lubrication:
——Oil records on Michigan United Traction Co., 1346
——Railway motors, Brooklyn Rapid Transit system [Green], *308

M

Mail carriers, Transporting, Seattle, Wash., 284
Mail transportation:
——Connecticut Co. discontinues service, 1470
——Pay bill in Congress, 1356
——Report of United States mail service on electric lines, 358
——Westchester, Pa., Service discontinued, 798
Maine, Accident record, 900
Maintenance of electric railway equipment [Lambert], 1459
Maintenance records and costs:
——New York Rys., Comprehensive records and charts concerning operation of rolling stock, *915; Comment, 909
——New York, Westchester & Boston Ry., Costs and records with single-phase equipment, 643
——Rome, Ga. [Wade], 935
Manganese steel. (See Track construction, Manganese special work)
Manganese steel castings, Difficulties in manufacture, *1221
Manganese steel societies, Meeting of, in New York, 923
Manholes, Marking location, Brooklyn [McKelway], *730
Manila. (See Philippines)
Manufacture of cars by railways [Cummins], 15
Manufacturer and his relation to the industry [Tripp, Hawley], 18-19
Maps:
——Belfort, France, 1323
——Buenos Aires, Argentina, 536
——Butte, Anaconda & Pacific Ry., 579
——Chicago, Milwaukee & St. Paul Ry., 34
——Detroit United Ry., 1023
——Fall River, Mass., 816
——Gothard Line, Switzerland, 528
——Illinois Traction System, Signalled territory, 1071
——London, 296
——Mesaba Ry., 68
Maps: (Continued)
——Milwaukee fare zones, 185
——Montreal, Canadian Northern Ry., 572
——Montreal & Southern Counties Ry., 702
——New York Municipal Ry., 1262
——Pennsylvania R. R., Philadelphia electrification, 861
——Portland, Eugene & Eastern Ry., 359
Marion, Ohio, Columbus, Marion & Bucyrus Ry., Reorganization, 795
Massachusetts Institute of Technology:
——Courses in electrical engineering, 186
——Electrical research, 1389
——Engineering Department merged with that of Harvard University, 150
——Investigation of fare economics, 587
Massachusetts Northeastern Street Ry. (See Haverhill, Mass.)
Massachusetts Public Service Commission:
——Bay State Street Ry., Findings, 208
——Depreciation hearings, 1152
——Watertown fare petition, 208
Massachusetts Street Railway Association:
——February meeting, 415
——January meeting, 191
——Mayors' night, 1151
Master Car Builders' Association:
——Convention:
Comment, 1311
Exhibits, 1338
Papers, 1337
Medford, Ore., Southern Oregon Electric Ry., New road, 791
Megaphone for announcing cars, 1427
Melbourne, Australia, Electrification, 274
Memphis (Tenn.) Street Ry.:
——Enforcement of ordinance enjoined, 739
——Man efficiency considered by safety committee, 1010
Mercury-arc rectifier, Experimental use on New Haven Road [Gibbs], 706
Meridian (Miss.) Light & Railway Co., Single-truck cars, *838
Mesaba Ry. (See Virginia, Minn.)
Meters:
——Laboratory portable voltmeter (Westinghouse), *734
——Portable graphic (Esterline), *549
——(Westinghouse) 5-in. d. c. ammeters and voltmeters, *937
Metropolitan Street Ry. (See Kansas City)
Metz, Germany, Headway clock, *196
Mexican Light & Power Co., Protection by machine gun equipment, 893
Mexico, Prophecy concerning, 942
Michigan Ry. (See Grand Rapids, Mich.)
Michigan United Traction Co. (See Jackson, Mich.)
Middlesex & Boston Street Ry. (See Newtonville, Mass.)
Mileage records, Method of keeping, Metropolitan Street Ry., Kansas City, Mo., *423
Milk transportation, Detroit United Ry., 1027
Milledgeville (Ga.) Railway, Storage battery cars, *1350
Milwaukee, Wis.:
——Milwaukee Electric Railway & Light Co.:
Car design improvements [Cross], 1391
Educational work in the company section 541
Efficiency engineering in shops, *631
Fare, Effect of reduced, 256
Fare zones, Suburban, Two cents a mile with minimum fare of five cents, *185
Operating problems [Stearns], 1135
Planning department and premium system, 632
Repair shop practice, *652
——Midwaukee Light, Heat & Traction Co.:
Fare readjustment, 148
Racine complaint dismissed by Wisconsin Commission, 726
Minneapolis, Minn.:
——Minneapolis & Northern Gasoline Motor Ry., Gasoline car, *1469
——Minneapolis Street Ry., Manganese steel special work, Experience [Wilson], c1100
——Twin City Rapid Transit Co.:
Annual report, 429
Car details, *48
Maintenance of way notes, *81
Photographic contest, 1304
Reduction of running time, 899
Wheel maintenance, *142
Mississippi Electric Association, April meeting, 1099
Missouri Electric, Gas, Street Railway & Water Works Association, Annual meeting, 1267
Missouri Public Service Commission:
——Annual report, 1054
——Report on inspection of railways, 1341
——Valuation case of Springfield Gas & Electric Co. and Springfield Traction Co., Abstract of brief, 989
Mobile (Ala.) Light & Railroad Co., Annual report, 1229
Montpelier, Vt., Barre & Montpelier Traction & Power Co., Strike, 379, 492, 603
Montreal:
——Electrification of Canadian Northern Ry. tunnel and terminal [Lancaster], *572
——Montreal & Southern Counties Ry., 600-volt d. c. electrification. Route, track, line, substations and cars, *702
——Montreal Tramways:
Bushing press for different types of motors [Macleod], *1104

(Abbreviations: *Illustrated. c Correspondence.)

Montreal:
——Montreal Tramways: (Continued)
Pipe-threading machine, Motor-driven, *1284
Prison car, *145
Safety first campaign methods, 988; Comment, 955
Stores car, Steel, *88
Train-operation, *367
Morgan & Co., J. P., Resignation from directorates, 98
Morristown, N. J., Morris County Traction Co., Power contract, 941
Moscow, Platform accidents [Sheremetewsky], c675
Motorbuses:
——Chicago, Proposed in, 555
——Competition by, 1207
——St. Louis, 555
——Stepless [Field], *1352
——Toronto, Suggestion, 499
Motor repair shop, Third Avenue Ry., New York [Parsons], *638
Motors:
——Booster control in Paris [Jacquin], *302
——Cleveland Ry., Center-entrance car, 458
——Comparative characteristics of different types for electric locomotives, *535
——Field-control, Chicago Elevated R. R., *324
——Field control test in Toledo [Wynne], 1447; Comment, 1427
——Improvements [Layng], *466
——Load performances of carbon brushes [Speer], 998
——Low-floor GE-247, Pittsburgh, Ry., 938
——Lubrication, Evolution of, Brooklyn Rapid Transit system [Green], *308
——Maintenance cost of old and new [Taylor], 175
——Tap-field motors, GE-242-A, Chicago City Ry., *1407
——Temperatures of single-phase, New York, Westchester & Boston Ry., 396
——Ueberetsch Ry., 1200-volt d. c. motor [Gyaros], *768
——Wiring diagrams of commutating pole motors, Westinghouse and General Electric, *1285
Moving of buildings [McKelway], 824
Moving pictures:
——Central agency suggested, 753
——Chicago Safety Bureau, 949
——Pacific Electric Ry., 578, *769; Comment, 753
——Washington, D. C. [Dement], c829
Muncie-New Castle line. (See Anderson, Ind., Indiana Union Traction Co.)
Municipal ownership:
——[Brady], 1455
——Comment, 1069
——District of Columbia. (See Washington, D. C.)
——France, Results in. Comment on book by Yves Guyot, 1021
——Government ownership of railways. Review of book by Samuel O. Dunn, 353
——Labor conditions under, 571, 805
——Nelson, B. C., 149
——Opinions of leading men, 1198
——Statistics on government and private ownership, 1200
——Superior, Wis., 149
——Tacoma, Wash., Poposed, 150
——Testimony in Washington case. (See Washington, D. C.)
——Toronto, Mayor Hocken re-elected, 93
——Versus private enterprise [Burdett], 19
——Washington, D. C. (See Washington)
——[Williams], 737

N

National Association of Corporation Schools, Convention, 1392
National Efficiency Exposition in New York City, 825
National Electric Light Association:
——Company sections, Educational work of [Martin], 518; Comment, 508
——Convention at Philadelphia, *1271, 1324
Near-side stops, 909, 949, [Lyne], c1041, c1101, [Fairchild], c1154
Nelson, B. C., Municipal ownership, 149
New Albany, Ind.:
——Park for Insull properties, 1080
——Safety first association formed, 1382
——Safety first results, 384
New Brighton, Pa., Beaver Valley Traction Co., Safety first campaign, *1390; Comment, 1373
New England Street Railway Club:
——Annual meeting and banquet, 715
——April meeting, 986
——May meeting, 1257
——Past-president's night, 530
New Haven, Conn., Connecticut Co.:
——Derailments at facing point switches, *676
——Dump cars, Steel multiple motor-operated, *197
——Mail service discontinued, 1470
——Overhead construction, spans, brackets and curves [Harte], *994
——Reclaiming old switch tongues and general special work, *592
——Statement concerning separate organization, 1057
——Switch hole, Making self-cleansing, *729
——Switches, Preventing freezing of electrically-operated, *373
New Jersey Public Utility Commission, Recommendations, 94
New Midland Power & Traction Co. (See Cambridge, Ohio)
New Orleans, La.:
——Interurban entrance, 942
——New Orleans Railway & Light Co.:
Annual report, 1359
Car building plans abandoned, 791
New York, Auburn & Lansing R. R. (See Auburn, N. Y.)
New York Central & Hudson River R. R.:
——Lighting by storage battery, *1255
——Repair shops at Harmon, N. Y. Original features of design, *1244; Comment, 1240
——Wrecking derrick car, Double-ended, *1046
New York City:
——Accidents, 1913, 103, 334
——American Light & Traction Co., Earnings, 742
——Conference on universities and training for public service, 1133; Comment, 1127
——Dry Dock, East Broadway & Battery R. R., Change in motive power, 491
——Efficiency exposition and conference, First national, 423
——Elevated extensions and third tracking, 328
——Federal Light & Traction Co., Annual report, 793
——Forest Products Exposition, 1155
——Franchise forfeiture cases, 149
——Hudson & Manhattan R. R.:
Construction, time extension, 844
Financial readjustment, 57
Income statement, 944
Maintenance of all-steel cars [See], c1212
——Interborough Rapid Transit:
Boilers for the 30,000-kw turbines, 1
Christmas gift to employees, 385
Clocks, Running-time terminal, *547
Coasting time recorders, Operating experiences with, *680
Co-operative stores for employees, Results of operation, 367
Elevated, Contracts for third-tracking, 426
Fenders and wheel-guards, *709
Loan fund, 948
New Year's greeting to employees, 102
Power production economies [Stott], 1041
Power station at 74th St., Changes, *872
"Safety" movement [Doyle], 709; Comment, 707
Subway, Platforms, Extensible, at stations, *421
Transportation record, 900
Venner suit dismissed, 58
Welfare department, List of activities, 465
——Kings County Light Co. Decision of New York Court of Appeals. Recognition of "Going value" for rate making, 821, 1055
——Long Island R. R., Statistics, 157
——Manhattan & Queens Traction Corp., Center-entrance cars, *374
——New York Consolidated R. R., Operating contracts, Results, 56
——New York Municipal Ry.:
Car of great length and unusual width. Comparisons with earlier cars, *1261, *1327; Comment, 1243, 1313
Progress report, 1003
——New York Rys.:
Bond issue proposed, 1470
Christmas gift to employees, 385
Fender, cars and safety first movement [Doyle], *709; Comment, 707
Financial matters, 206
Interest payment, 559
Magazine for employees, 1059
Manganese insert turnouts at end of Williamsburg bridge, *1158
Snow sweeper, Outboard, *838
Statistics on operation of rolling stock. Comprehensive records and charts, *915; Comment, 909
Suit to enforce interest payments, 1117
——New York, Westchester & Boston Ry.:
Ground detectors for a. c. rolling stock [Longhurst], *729
Journal brass, Design of [Brinckerhoff], c *540
Maintenance of all-steel cars [Potter], c1212
Maintenance of electrical equipment, *394
Maintenance of mechanical equipment, *220
Operating records and maintenance costs with single-phase equipment, 643
Shrink fits versus press fits [Potter], *321
——North American Co., Annual report, 741
——Public Service Commission:
Accounting for maintenance and depreciation [Weber], c827
Appropriation, 570
Magazine called Public Service Record, 1473
Report for 1913, 192
Track specifications for new rapid transit lines [Mills], *317
New York City: (Continued)
——Smoking on cars, Petition dismissed, 59
——Snow problem, Conference between traction officials and Street Cleaning Department, 600
——Snow removal, 727
——Steinway tunnel assigned to city, 843
——Stopping of cars on near-side, 909, 949; [Lyne], c1041; c1101, Fairchild], 1154
——Storm, Storage-battery cars in, 424
——Subways, New:
Contracts, 93, 275, 426, 491, 601, 737, 789, 940, 1004, 1166
Details concerning routes, 376
Notes on, 193
Rails, Separate contracts for, 56
Seventh Avenue, Bids, 55
Track Specifications of New York Public Service Commission [Mills], *317
——Third Avenue Ry.:
Accident prevention by installation of folding doors and steps, 805
Annual report, 205
Bonds sold directly to the public, 494, 507, 607
Car, Low-level, end-entrance, *731
Clocks, Running-time terminal, 550, *547
Coasting time recorders, 550
Conduit operating difficulties, 768
Controllers of K type, Improvements [Parsons], *418
Equipment and stores economies [Johnson], *780
Fuse-testing board [Parsons], *319
Insurance for employees, 66
Motor repair shop [Parsons], *638
Safety campaign [Maher], 708
Shop work on a piece-work basis [Johnson], 373
Smoking order modified, 1060
Truck-overhauling shop [Johnson], *1077
Welding, Electric arc [Parsons], *482
——Tunnels under East River, Construction contracts, 1227, 1296
——Twenty-eighth and Twenty-ninth Streets Cross-Town R. R. Reorganization proposed, 558
——Union Ry.:
Cable clamp maintenance record, *1218
Car, Single-truck convertible, *350
——United Gas & Electric Engineering Corp., Formation, 155
——United Railways Investment Co., Readjustment plan, 846
New York Electric Railway Association, March meeting, 707, 713
New York, New Haven & Hartford R. R.:
——Accident near Rye, N. Y., 894
——Affairs, 892
——April meeting of stockholders, 847
——Balanced distribution system, 22,000-volt [Murray], 706
——Burning of books of an affiliated company. The fault and the remedy, 1067
——Convertible bond issue annulled, 153
——Electrification extensions, 738, 842, 1473
——Financial matters, 607, 892
——Inductive interference, Reduction by auto-transformer plan. Details of plan and of circumstances leading to its adoption [Murray], *706; *960; Comment, 958
——Investigation of, 377, 426, 1004, 1053, 1112, 1166, 1172, 1226
Mellen on government ownership, 1239
——Locomotive shops, Electric, at Van Nest, N. Y. Arrangement and equipment, *623; Comment, 619
——Locomotives, Switching electric, at Harlem yards, *1159
——Note issue, 945
——Rhode Island properties, Trustees for, 280
——Segregation of various properties, 146, 735, 941
——Time inspection, New system of, 992
New York Public Service Commission, First District. (See New York City)
New York Public Service Commission, Second District. (See New York State Public Service Commission)
New York Railroad Club, Electrical night, 705
New York State Public Service Commission:
——Appropriation and the cost of regulation, 570
——Bulletin on cases pending, 938
——Report for 1913, 192
New York State Rys. (See Rochester, N. Y.)
Newark, N. J., Public Service Ry.:
——Annual report, 845, 1007
——Bond sale, 58, 154
——Company section of American Electric Railway Association, 725, 1190
——Derailments at facing-point switches [George], *728
——Educational work in the company section, 541
——Employees: the ideal supervisory officer, 1019
——Franchise agreement, 426
——Invoice sticker, 454
——Purchase-money mortgage disapproved by State Commission, 606
——"Safety First" movement [Van Brunt], 712; Discussion, 707
——Stores department, Organization and workings of [Inglehart], 454, 459

(Abbreviations: *Illustrated. c Correspondence.)

Newark, N. J., Public Service Ry.: (Continued)
——Storm effects, 591
——Team work, 139
——Terminal grants approved, 740
——Track maintenance [McGuire], 139
——Training of platform men [Coe], 1190; Comment, 1240
——Transportation department, Organization [Bolen], *415
——Wage increase, 60
——Welfare work [Donecker], 416
Newport News, Va.:
——Newport News & Hampton Railway, Gas & Electric Co., Organization, 381
——Public relations, 376
Newtonville, Mass., Middlesex & Boston Street Ry.:
——Arbitration hearings, 893, 1418, 1472
——Hearings on fares, 745, 1480
——Norumbega Park, Operating features, *411; Comment, 391
Norfolk, Va., Study of traffic conditions, 1443
Norfolk & Western Ry., Electrification, Discussion at New York Railroad Club, 705, 706
North American Co. (See New York City)
Northampton (Mass.) Street Ry.:
——Arbitration with employees, 685, 739, 841, 851
——Wage award, 1304, 1411
Northern Ohio Traction & Light Co. (See Akron, Ohio)
Norumbega Park. (See Parks)
Norwalk, Conn., Roton Park Improvements, 514
Norway:
——Christiania, Subway for, 184
——Christiania-Drammen Ry., Electrification approved, 50
——Electrification of state railways, Report of royal commission, 523
Nova Scotia tramway (See Halifax, N. S.)
Nut, Absolute lock (American Lock Nut Co.), *938

O

Oakland, Cal.:
——Oakland, Antioch & Eastern Ry.:
Financial matters, 1361
Locomotives, Electric, *785
——San Francisco-Oakland Terminal Rys.:
Bond issue, 898, 1302
Complaint dismissed, 692
Organization chart, 1086
Rails electrically welded, 1289
United Properties purchase, 206, 279, 333
Ogden (Utah) Rapid Transit Co.:
——Composite construction cars, *1326
——Improvements, 240
Ohio Public Utilities Commission, Legislation gives additional authority, 1004
Ohio Traction Co. (See Cincinnati)
Ohio valuations, 842
Oil and paint storage building, Baltimore, *868
Oil record system, Michigan United Traction Co., *1346
Oklahoma Ry., Line car with platform having side adjustments, *372
Omaha (Neb.) & Council Bluffs Street Ry.:
——Fare ordinance, 602, 738, 1227
——Manganese steel special work, Experience [Findley], c1281
——Repair shop practice [Wood], 929
Oneida, N. Y., West Shore Ry., Fraud in promotion, 1167
Ontario, Radial electric railways proposed, 842, 1002
Operating problems of electric raliways [Stearns], 1135
Operating ratio, Value of, 1241
Operating records and costs:
——Chicago Elevated traffic curves, 532
——Compiling operating expenses [Kasemeier], 1445
——Costs and records with single-phase equipment. New York, Westchester & Boston Ry., 643
——Energy and time analyses, 756
——Energy meters on cars, Economy of, El Paso, Texas [Morse], 1206
——Field control test in Toledo [Wynne], 1447; Comment, 1427
——London tube railways, 298
——Special work, Brooklyn Rapid Transit Co. [Bernard], 1217
——Speed during non-rush hours in various cities, 867
——Station spacing, Effect of, on schedules [Squier], *670
——Steam versus electricity in Bavaria, 811
——Time-tables, Development of [Jackson], 873; Comment, 857
——Traffic statistics, Pittsburg, 924
Oregon, E. L. Van Dresar a pro-railroad candidate for Congress, 1039
Organization charts:
——San Francisco-Oakland Terminal Rys., 1086
——Signal maintenance:
Boston Elevated Ry., 660
Illinois Traction System, 1071
Organization of the electric railway and teamwork [McGraw], 462
Organization of the transportation department [Bolen], *415
Overhead charges (See Appraisal of railway property)
Overhead construction:
——Anchorage [Harte], 936
——Cable clamps, Maintenance record, Union Ry., New York, *1218
——Clips and hangers [Harte], 936
——Conductor tables, 1106
——Connecticut Co. [Harte], *994
——Diagonal span construction on staggered poles used for single track, Cleveland [Scott], *832
——Feeders, feed taps and lightning arresters [Harte], 1105
——Inspection, in Wisconsin, 175
——Insulators, Cap and cone, Willingness of manufacturers to adopt standard, 1039
——Mesaba Ry., *69
——Montreal & Southern Counties Ry., *702
——Salmon River Power Co., *1380
——Spars, brackets and curves, Design of [Harte], *994
——Splicing sleeve, Philadelphia [Harte], 935
——Suspension, Three-part straight-line [White], *732
——Suspension problems [Harte], *885
——Trolley pan with guides for terminals where cars are turned, *420
——Trolley wire on curves, Determining correct position [Dixon], *1042
——Trolley wire, Selection of [McKelway], 647
——2400-volt, Butte, Anaconda & Pacific Ry., *579
——Ueberetsch Ry. [Gyaros], *766
——Vienna-Pressburg line, *190
——(See also Catenary construction)
Oxy-acetylene in Decatur Shop of Illinois Traction System, *1438

P

Pacific Claim Agents' Association, Executive committee meeting, *480
Pacific Electric Ry. (See Los Angeles, Cal.)
Pacific Gas & Electric Co. (See San Francisco)
Pacific Power & Light Co. (See Astoria, Ore.)
Painter's rust catch-all bag, Brooklyn, *935
Paints and painting:
——Air brush for motor cases, *1284
——Cincinnati Traction Co., Car painting by use of portable drying oven with ordinary air-drying paints and varnishes, *444; Comment, 442
——Report of American Railway Engineering Association, 666
——Storage building for oil and paint, Baltimore, *868
——Varnish remover, Home-made [Ingle], 677
Panama Canal, Electric locomotives, *835
Panama-Pacific International Exposition:
——Electric railway exhibits and transportation facilities, 358, 553
——Intramural railway, 1336
——Progress on buildings, *821, *1277
——View of transportation palace, *1277
Pantographs, New York, Westchester & Boston Ry., *220
Paris:
——Gas-electric car, Pieper system, Trial service, *1288
——Metropolitan Ry., Booster control [Jacquin], *302
——Subway statistics, 80
Parks and pleasure resorts:
——Canobie Lake, Salem, N. H., Operation details, *576
——Fairview Park, Indianapolis Traction & Terminal Co., Developments of, *516
——New Albany, Ind., Silver Hills Grove of Insull properties, 1080
——Norumbega Park, Auburndale, Mass., Operating features, *411; Comment, 391
——Roton Point, Norwalk, Conn., Improvements, 514
——Sacandaga Park, Fonda, Johnstown & Gloversville Ry., Features, 927
——Value of, to railway company, 391
Pass evil, Reduction of. Politicians as grafters, 441
Passenger stations. (See Waiting stations)
Pavement:
——Breaking up pavement with a plow, Cleveland [Clark], *1346
——Edmonton, Alberta [Saunders], *878
——Granite-block, for shallow T-rail on parked streets [Mathews], *271
——Wood-block, Experiences with, 1207, 1254
Peak loads sometimes unprofitable [Reilly], 1082; Comment, 1068
Pekin, Ill., Municipal ownership favored, 1055
Pennsylvania, History of street railway development [Tingley], 1081
Pennsylvania R. R.:
——Air-brake performance, Tests with different types of brakes on high-speed trains [Dudley], 362; Comment 343
——Depreciation charges on equipment, 981
——Electric energy supply, Contract with Philadelphia Electric Co., 54, 966
——Electrification plans, 555, 606, [Gibbs], *705
——Employees roll of honor, 352
——Pass evil. Action of the Company, 441
——Philadelphia-Paoli electrification, *860; Comment, 858
——Tractor, Electric, for switching in city streets, *130
——Training of employees and results of systematic promotion, 651
Pennsylvania Street Railway Association, May meeting at Harrisburg, Proceedings, 1081
Pension. (See Employees)
Peoria, Ill., Illinois Traction System:
——Annual report, 1475
——Billboard advertising, *1396
——Bridge panel post replaced under traffic, 1433
——Bridges of wood replaced with concrete and steel, 419
——Express business by Adams Express Co., 1480
——Oxy-acetylene in Decatur shop, *1438
——Painting motor cases with air brush, *1284
——Peg board for ordering cars to the shops for inspection [Chubbuck], *593
——School for steam-boiler operators, 34
——Sign on ridgepole of shops, 352
——Signal maintenance organization and costs, Automatic block system, *1070
Philadelphia, Pa.:
——Philadelphia Rapid Transit Co.:
Agreement with city for rapid transit system, 1294
Appropriation requested for audit, 941
Farm freight service, 384, 432
Jack, Emergency [Duff], *1351
Jacks on cars, 739
Near-side stops [Fairchild], c1154
Proposed plan for operation of additional lines. Comparison with suggestions of the Department of city transit, 788
Route guide, 103
Sand-handling methods, *910
Signals on Chester Short Line, *1348
Snow removal, 746
Sprinkler test at Luzerne carhouse, *1028
Transit agreement, 1227, 1312
Ventilating near-side cars, 746
——Rapid transit report by A. Merritt Taylor. Tables showing estimated increase in revenue, future investment, overhead percentages, rate of return and time-saving, 76
——Semaphore signals for traffic regulation, *1033
——Snow removal conference, 931
——Subway, Dayton fare boxes in, 1104
——Subways proposed, 96, 755
Philippines:
——Center-entrance cars in Manila, 562
——Public Utilities Commission appointed, 202
Piedmont Traction Co. (See Charlotte, N. C.)
Piles, Treatment. (See Timber preservation)
Pine Bluff (Ark.) Co., Steel underframe cars, *484
Pipe:
——Electrolysis. (See Electrolysis)
——Preservative coatings for, 1254
Pittsburgh, Pa.:
——American Water Works & Electric Co., Sale, 1057
——American Water Works & Guarantee Co., Reorganization, 689, 794, 1008
——Freight terminal proposed, 385
——Philadelphia Co., Annual report, 1299
——Pittsburgh & Butler Street Ry. Change from single-phase to 1200-volt direct current. Description of new equipment, *166
——Pittsburgh, Harmony, Butler & New Castle Ry., Freight transportation [McIntyre], *1034
——Pittsburgh Rys.:
Cars:
Center-entrance, end-exit, *808
Remodeled for center-entrance, *1217
Commutator bar cavities filled with dental cement, *730
Employees asked to arbitrate, 1012
Insurance for employees, 433
Motors, Low-floor GE-247, 938
Protest against sale of liquor to employees, 850
Traffic statistics, Methods used in compiling, *924
Transfer tickets, *867
——Subway committee appointed, 426
——Subway ordinance competition, 942
——Transit problems, 1296
——West Penn Traction & Water Power Co.:
Annual report, 430
Liquor advertisements barred from cars, 1364
Reorganization, 945
Pittsfield, Mass., Berkshire Street Ry., Mountain line denied, 150
Platform for raising rheostats to cars with one man [Parsons], *1156
Platforms of cars, Order against riding on, Pennsylvania, 562
Platforms of stations, Extensible, in New York Subway, *421
Plymouth, Mass., Brockton & Plymouth Street Ry., Hearing on fares and service, 101
Poles:
——Brackets, Hot-riveted, with impregnated cobs [Barnes & Kobert], *783
——Concrete:
Hollow [Jones], 198
Tests of solid and hollow reinforced poles at Oklahoma City and Nashville, Tenn., *485
Tests in Syracuse, N. Y., *781
——Joint use of:
Rental rates, Virginia Railway & Power Co., 443

(Abbreviations: *Illustrated. c Correspondence.)

Poles:
——Joint use of: (Continued)
Report of American Electric Railway Association, 249
——Red Cedar Association meeting, 169
——Reinforcing decayed, with concrete-mixing car [Purinton], *833
Portland, Ore.:
——Portland, Eugene & Eastern Ry., System, power distribution and rolling stock, *359
——Portland Railway Light & Power Co.:
Campaign in interest of home purchases, 603
Fare ordinance declared void, 334
Fare rates and length of ride, Statistics, 229
Gates of two-car trains [Boynton], *677
Safety-first signs, *316
Power distribution:
——[Bell], 12
——Direct-current distribution for interurban service [Rice], 521
——Direct-current distribution for underground and elevated railways [Blair], *521
——General problems [Junkersfeld], 520
——Inductive interference. (See Transmission lines)
——Insulated negative feeder systems, 44
——Lighting and industrial power [Merriam], 522
——Mechanical strains in a. c. conductors, 195
——Portland, Eugene & Eastern Ry., *360
——Reactance in power circuits, 423
——2400-volt, Butte, Anaconda & Pacific Ry., *579
——Underground trolley difficulties, Third Avenue R. R., 768
Power generation:
——Centralization of power supply [Insull], 914
——Centralization of power supply in London [Merz and McLellan], Comment, 955
——Designing hydroelectric plants [Hutchinson], 520
——Economies in production, Interborough Rapid Transit Co. [Stott], 1041
——Fuel, Value of various kinds, 1253
——Illinois [Junkersfeld], 1134
——Mercury-vapor turbine, Experiments by W. L. R. Emmet, 575
——Protective reactances in larger stations [Lyman, Rossman and Perry], 447
——Relays, Operating characteristics of inverse time-limit (Westinghouse), *1049
——Reports of National Electric Light Association, 1271, 1324
——Salmon River Power Co., 1382
——Water power economics [Coldwell], 1272
Power requirements and energy consumption of electric railways [Richey], 1192
Power stations, Hydroelectric
——Marseilles, Ill., McKinley system, Improvements [Humphrey], 586
——Salmon River Power Co., Construction details, *1378; Comment, 1373
——Savannah River, near Augusta, Ga., Completion, 426
Power stations, Steam:
——Interborough Rapid Transit, New York, Changes, *872
——Louisville Traction Co., Growth, *402, *716
——Mesaba Ry., *70
Prepayment-car patents, Status of [Casey], c1462
President Wilson's message, 201
Presidio & Ferries R. R. (See San Francisco)
Pressburg, Hungary, Single-phase line to Vienna, *190
Preston, Ont., Galt, Preston & Hespler Ry., Locomotive [Baldwin-Westinghouse], 375
Profit-sharing with the municipality. (See Public service corporations)
Progress and problems:
——Discussions [Black, Allen, Eldridge, Brady, Ayling, Holst, Gibbs, Bell, Armstrong, Gay, Cummings, Brinkerhoff, Renshaw, Tripp, Hawley, Burdett, Webster, Mortimer, Joyce, Rollins, Ford], 6
——Trend of technical branches of railway industry, 2
Providence, R. I.:
——Rhode Island Co., Signs for cars following, 729
——Subway proposed, 277, 601, 739, 1053
Prussian-Hessian State Rys., Lauban-Königszelt single-phase line, 1076
Public, Relations with:
——Accident claim department and the public, 294
——[Anderson], 241
——Baltimore [House], 947
——Betterment of, Responsibility of railway companies, 164
——Complaints, Proper manner of caring for [Crafts], 982; Comment, 1020
——Delays from vehicular traffic, 699
——"Do it, and do it first," 291
——Exhausting the public's patience, 295
——Explaining service and accident cost to public [Reilly], 1082; Comment, 1068
——How to have good relations [Allen], 7
——Improvements suggested [Tripp], 238; Comment, 219
——Modern public policies of public service corporations [Crafts], 982; Comment, 1020
——Policies to be used in dealing with public [Slater], 1142
——[Rollins], 23
Public ownership. (See Municipal ownership)
Public policy report of National Electric Light Association, 1274; Comment, 1311
Public service, Training for, National conference in New York, 1133; Comment, 1127
Public-service commissions:
——Co-operation with state governments proposed by Bureau of Standards, 291
——Engineers as members of [Humphreys, Sague and Gibbs], 126; Comment, 106
——[Mortimer], 21
——Regulation of utilities compared with profit-sharing with municipality [Erickson], 257; Discussions [Brady], 245; [Rosecrantz], 246; Comment, 217
Public service corporations:
——Alternative of regulation is municipal ownership and operation, 1019
——Annual reports, Need of uniformity in, 859
——California. Cost of money. Reasonable return on the investment [Hochenbeamer], 1074; Comment, 1067
——Centralized management, Advantages to the public [Webster], 20
——Control of. Rate making by valuation [Gray], 36; Discussions, 36, 37; Comment, 4
——Credit of public utility companies [Elliott], 1448
——Dividends on public utilities, 1297
——Factors determining a reasonable charge for service [Cooley], 124
——Future of public utilities, from their point of view [McCarter], 871; Comment, 857
——Future regulation of [Kerr], 1052
——Governmental operation, Where it fails, 569
——Holding companies:
Advantages and disadvantages [Ford], 23
Bill in Congress, 685
Lectures at New York Young Men's Christian Association, 684
Testimony at Washington [Flexner, Gibboney, Beekman], 1098
Views of Federal administration, 217
——Inefficiency in boards of directors [Babson], 354
——"Irresponsible political boss," 1239
——Liability for unsecured debts after reorganization, 1056
——Management by large operators [Joyce], 23
——Municipal ownership. (See Municipal ownership)
——Regulation:
Cost, New York State, 570
Discussion by Western Society of Engineers, 673
Engineer's part in [Humphreys, Sague and Gibbs], 126; Comment, 109
Interstate Commerce Commission, Proposed increase of jurisdiction over electric railways. Hearing at Washington [Brady, Schoepf, Perry, Weadock, Fischer, Henry, Potter], 533
Legal aspects of [Mathewson], 1111
Rayburn bill, Protest of electric railway representatives against, 1399; Comment, 1372
State regulation [Norton], 586
——Regulation or profit-sharing with the municipality, Economic aspects [Erickson], 257; Discussions [Brady], 245, [Rosecrantz], 246; Comment, 217
——Relations between cities and railways [Arnold], 535
——Valuation. (See Accounting, Appraisal)
Public Service Ry. (See Newark, N. J.)
Publicity:
——Advertising methods [Barron and Williams], 54
——Co-operative publicity problem. "Lowlanders and highlanders" [Hazzard], 967; Comment, 956, 1020
——Corporation baiting and misrepresentation, 1184
——Explaining service and costs by car announcements, 1068
——Failure to eliminate troubles in many instances. Different kinds of publicity service. The most effective service [Buchanan], 1209; Comment, 1183; [Van Zandt], c1279
——Need of [Black], 234
——Newspaper publicity. Criticisms requested and answered. Leaflets in cars, Toledo, 1250
——Reasons for corporation publicity, 1183
——Value of, illustrated by methods of steam road campaign for increased freight rates, 1241
Puget Sound Electric Ry. (See Tacoma, Wash.)
Puget Sound Traction & Light Co. (See Seattle, Wash.)
Purchased power:
——[Ayling], 9
——Birmingham, Ala., 1401
——Charges for power, c369; Comment, 345
——Pennsylvania R. R., for Philadelphia lines, 54, 966

Q

Quebec Railway, Light & Power Co., Traffic development methods, *1130

R

Rail-cleaning car, Suction type, Zurich Municipal Rys., *1223
Rail file for accurate finish of new joints, Brooklyn Rapid Transit Co., *194
Rail joints and bonds:
——Combination shrunk-on and welded joint, Holyoke, Mass. [Pellissier], *323
——Electrically welded, San Francisco-Oakland Terminal Rys., 1289
——Welded joint and rail brace, Cincinnati, *1467
Rails:
——British standard section, *812
——Characteristic practice in American cities, 815
——Corrugation, Causes and remedies [Sellon], 593
——Girder, Standards of Engineering Association. History of their development. Old and new designs [Schreiber], *812; Comment, 704, 806
——Production in 1913, 1138
——Report of American Railway Engineering Association, 666
——Rolls for standard rails, Lorain Steel Co., 867
——[Schreiber], 1258
——Seams developed from cracks in the ingot [Wickhorst], 81
——Seams in base, influence of, on ductility of the metal [McFarland], 81
——T-rail construction [Mitchell], *476
——Titanium in rail steel, Influence of. Bulletin issued by Titanium Alloy Mfg. Co., 301
——Titanium, Tests by Titanium Alloy Mfg. Co., 783
——Wear measurements, United Railroads of San Francisco, 1032
Railway ills, Mellen's prescription, 1298; [Lee], 1429
Railway Signal Association, March meeting, 669
Railway Storekeepers' Association, c87
Rate making by valuation. (See Appraisal of railway property)
Rates, Railway. (See Fares)
Rayburn bill. (See Public service corporations, Regulation)
Reactances in large power stations [Lyman, Rossman and Perry], 447
Reasonable return on investments. (See Financial)
Receivers, Philanthropic donations by, 110
Receiverships and foreclosure sales in 1913, 33
Records and record forms:
——Emergency call, Boston, 1138
——Equipment defects [Squier], 318
——Freight waybill, "Harmony Route," 1035
——Mileage on deviations from schedule, Kansas City, *423
——Milk waybill, 1027
——Oil record, Michigan United Traction Co., *1346
——Pattern sketches on records, Brooklyn, *195
——Piece-work system, Third Avenue Ry., 374
——Pull-in and defect records, Milwaukee Electric Railway & Light Co., 631
——Sand-car operation, Boston Elevated Ry. [Dana], 347
——Storekeeping:
Public Service Ry., *460
Third Avenue Ry., *780
——Time distribution, Milwaukee Electric Railway & Light Co., 633, 637
——Traffic [Larson], 180
——Unit cost system, Milwaukee Electric Railway & Light Co., 635
——Value of automatic records of occurrences in electric circuits [Steinmetz], 522
Regulation. (See Public service corporations)
Relays:
——Inverse time-element (Westinghouse), *1049
——Reverse current, for d.c. circuits [Roller-Smith], *1220
——Reverse power (Condit), *679
——Torque compensator (Westinghouse), *1468
Repair shop equipment:
——Axle straightener, Hydraulic type [Watson-Stillman], 682
——Bushing press for different types of motors, Montreal [Macleod], *1104
——Chuck for turning up bearings [Foote],
——Coil-baking oven, Detroit [Keller], *1464
——Collar puller, Ratchet, *653, *1045
——Commutator slotter, Simple, *653
——Conduit cutting apparatus, Albany, N. Y., *89
——Dies for renewing worn slots of brush-holders [Foote], *1045
——Drills, Two-spindle [Stow], *1219
——Drum sander of large size, 655
——Jack for installing rheostats [Parsons], *1156
——New York Central Road at Harmon shops, *1244
——New York, New Haven & Hartford at Van Nest shops, 619, *623
——Pantograph-shoe forming machine, *223
——Pipe bender and pole straightener [Duncan], *781
——Pipe-threading machine, Motor-driven, Montreal, *1284
——Sign boxes and signs, Manufacturing [See], *46

(Abbreviations: *Illustrated. c Correspondence.)

Repair shop equipment: (Continued)
——Suction devices for punch presses, Safety [Westinghouse], *889
——Trolley-pole straightener, *1406
——Truck-overhauling shop, Third Avenue R. R. [Johnson], 1077
——Wheel and gear testing set, Cincinnati, *89
Repair shop practice:
——Air compressors, Overhauling, 654
——Axle straightener, *654
——Bolster standardization, *655
——Brushes, Recutting and transferring worn, from motor to motor [Ingle], 543
——Burning-off torch, 656
——Cleaner, Home-made suction [Ingle], *887
——Cleveland, Painesville & Eastern R. R., *650
——Device for connecting motor leads to controller used to run truck from under cars, *834 [Parsons], *834
——Edmonton, Alberta, 512
——Electroplating, 656
——Equipment and stores economies, Third Avenue Ry. [Johnson], *780
——Field-coil dipping tank, *652
——Gear fits [Litchfield], *320
——Hardened pins and bushings [Boyer], 371
——Hardware, Statuary bronze finish of [Kreusser], *481
——Illinois Electric Railway Association [Lambert], 1459
——Inspection of rolling stock [Hanf], 725
——Inspection test set to locate incipient defects [Ransom], 1282; Comment, 1371
——Maintenance efficiency [Squier], 318
——Maintenance of modern and old type motors [Renshaw], 176
——Milwaukee Electric Railway & Light Co., *631, *652
——Motor overhauling, 654
——Motor-testing machine, *655
——New Haven road, Electric locomotive shops, Van Nest, N. Y., *623; Comment, 619
——New York, Westchester & Boston Ry., *220
——Oil and waste reclaiming, *656
——Omaha & Council Bluffs Street Ry. [Wood], 929
——Oxy-acetylene equipment, Illinois Traction System, *1438
——Pattern sketches on records, Brooklyn, *195
——Peg board for ordering cars to the shops for inspection, Illinois Traction System [Chubbuck], *593
——Piece-work system, Third Avenue Ry. [Johnson], 373
——Pinion puller, Novel, *653
——Potential test set, 652
——Press for removing bearings, *652
——Remodeling old cars, Cleveland, Painesville & Eastern R. R., *650
——Safety, Interborough Rapid Transit Co., *710
——Scrap handling, 908
——Shrink fits versus press fits [Potter], *321
——Testing trolley poles [Squier], *779
——Testing wheels and gears for location and centering, Cincinnati, *89
——Third Avenue Ry.:
Electric arc welding [Parsons], *482
Motor shop [Parsons], *638
——Time distribution, Milwaukee Electric Railway & Light Co., 633, 637
——Trolley-wheel grinding attachment, *653
——Truck-overhauling shop, Third Avenue R. R. [Johnson], *1077
——Trucks, Hand-drawn, of elevating type [National-Chapman], *599
——Wheel maintenance, Steel wheels, Minneapolis, *142
——Wheel-press records, Graphic, Use of hydraulograph, Boston, *1287
——(See also Paints and painting)
Repair shops:
——Accident prevention by means of safe guards, 66
——Baltimore, United Rys., Oil and paint storage building, *868
——Detroit United Ry., Fireproof construction, *1314
——Edmonton, Alberta [Woodroofe], *510
——Floors, Report of American Railway Engineering Association, 668
——New Haven road, Electric locomotive shops at Van Nest, N. Y., Arrangement and equipment, *632; Comment, 619
——New York Central & Hudson River R. R., Design and equipment, *1244; Comment, 1240
——Planning shop areas, 110
Revenues. (See Financial)
Rhaetian Ry., Single-phase electrification. Novel feature of locomotives, *760, *1430
Rheostats, Stand for hanging, to cars, with one man [Parsons], *1156
Rhode Island Co. (See Providence, R. I.)
Richmond, Va., Virginia Railway & Power Co.:
——Center-entrance cars, *1095
——Rental rates for joint use of poles, 443
——Surface condensers for cooling transformers [Palmer], *270
——Track, Life of concrete [Johnston], *1263
——Traffic conditions investigated, 1443
Riding habit. (See Statistics)
Rochester, N. Y.:
——Dispatching cars by telephone, *888
Rochester, N. Y.: (Continued)
——New York State Rys.:
Apprentice training [Cameron], c722; Comment, 757
Binoculars to detect line troubles [Cadle], 1216
Derrick work car on Utica lines [Ayers], *1044
Fare reduction order, Answer to petition of City, 147
Poles, Tests of reinforced-concrete, *781
Signals for double-track line between Utica and Little Falls, *836
Snow removal with scrapers, *835
Traffic interruption, Statistics, 745; Comment, 699
——Remedies for, Traffic obstruction, Co-operation of railway with teamsters' union, 699
Rock Island, Ill., Tri-City Railway & Light Co., Carhouse, *1187
Rockford (Ill.) & Interurban Ry.:
——Brushes, Re-cutting and transferring worn, from motor to motor [Ingle], 543
——Home-made suction cleaner [Ingle], *887
——Splicing broken trolley poles, 936
——Trolley wheels, Maximum wear from [Ingle], *59
Rome (Ga.) Railway & Light Co., Car maintenance statistics, 935
Rules, Instruction in, by moving pictures, 578, *769; Comment, 753
Rush-hour:
——Fallacies, 621; [Bigelow], c77
——Running time during rush-hours compared with normal, 955
——Traffic sometimes unprofitable [Reilly], 1082; Comment, 1068
——Traffic, Unequal growth of [Jackson], 873; Comment, 857

S

Safety islands on wide avenues [Striezheff], *919
Safety medals for electric railways to be awarded by the American Museum of Safety, 602
Safety movements. (See Accident claim department)
St. Gothard Ry., Electrification. (See Switzerland, Electrification of railways)
St. Louis, Mo.:
——Motor bus line, 555
——United Rys.:
Electrolysis test of insulated negative feeders under direction of Bureau of Standards [Rosa, McCollum and Logan], *116; Comment, 109
Jefferson Avenue line decision, 427
Manganese steel special work, Experience [Hawkins], c1280
Transfer matters, 892, 1061
Salesroom combined with waiting station, Cambridge, Ohio, *537
Salmon River Power Co., Details of hydro-electric plant, *1378; Comment, 1373
Salt Lake City, Utah:
——Salt Lake & Ogden Ry., Improvements, 240
——Salt Lake & Utah R. R., Construction details, *87
San Antonio, Tex., Smoking on cars prohibited, 1060
San Diego, Cal., Los Angeles & San Diego Beach Ry.:
——Electrification proposed, 324
——Valuation, 1052
San Francisco, Cal.:
——Crossings, Observations at, 50
——Geary Street Municipal Ry.:
Annual report, 557, 1170; Comments, 1128, 1185
Employees' demands, 1012
Motor trucks, *890
New line, 894
Report on extensions, 424, [Dodge], c1401
——Geary Street, Park & Ocean R. R., Suit against, 1476
——Pacific Gas & Electric Co. Testimony in rate case. Cost of money to California utilities. Necessity of adequate rate of return [Hockenbeamer], 1074; Comment, 1067
——Presidio & Ferries R. R., Purchase terms, 54
——"Safety First" conference, 745
——San Francisco-Oakland Terminal Rys. (See Oakland, Cal.)
——Southern Pacific Ry.:
Annual Report, 152
Crossing gate, Remote-control [Cook], *422
Interchange of steam and electric traffic on the Coast, 157
——United Railroads:
Certificate issue. Investment in irrigation projects, 1300
Employees' magazine, 746
Insurance for employees, 201
Rail-wear measurements, 1032
Sale to city proposed, 1298, 1410, 1412
——United Railways Investment Co., Annual report, 1300
——War department grants revocable permit for lines to Exposition, 927
Sand, Obtaining and handling:
——Boston Elevated Ry. [Dana], *346
——Philadelphia Rapid Transit Co., *910
Sand cars:
——Philadelphia Rapid Transit Co., *912
——Pneumatic operation suggested, 886
Sand trap for single-hopper equipment (Nichols-Lintern), *1409
Sanford, Me., Atlantic Shore Ry., Annual report, 688
Saybrook, Conn., Shore Line Electric Ry., Agricultural developments furthered, 561
Schedules and time-tables:
——Advertising electric service in steam folders, 1240
——Arranged from traffic investigations [Larson], 181
——Construction of time-tables, Boston Elevated Ry., 1257
——Development of time-tables [Jackson], 873; Comment, 857
——Handy time-table for employees, International Ry., Buffalo, 1094
——Headway clock to show when car is due, *196
——Mid-day traffic, Importance of, 621
——Safety-first ideas in time-tables, New Midland, Ohio, 157
——Station spacing, Effect of, on schedules [Squier], *670
Schenectady, N. Y.:
——Investigation of traffic conditions, 691
——Schenectady Ry., Fare case, 1232, 1233
Scranton, Pa.:
——Lackawanna & Wyoming Valley R. R., Change in control, 897
——Scranton & Binghamton Traction Co., Merger hearing, 430
——Scranton Ry., Relations with the public. Explaining service and accident cost [Reilly], 1082; Comment, 1068
——Scranton & Wilkes-Barre Traction Corp., Bond issue, 1117
Scrap, Handling of, 908
Seats in cars. (See Car design)
Seattle, Wash.:
——Puget Sound Traction, Light & Power Co.:
Annual report, 1475
Mail carrier transportation, 284
Rate decision appealed, 59
Terms for extensions, 1005
Ticket sale on cars not allowed, 335
——Rainier Valley lines proposed, 894
——Seattle Municipal Ry., 276, 843, 1051, 1228
Construction progress. Cost tables. Operating expenses, *1374
——Seattle, Renton & Southern Ry., Sale negotiations, 1167, 1356
Securities. (See Financial)
Self-propelled cars. (See Gasoline cars; Storage battery cars)
Seneca Falls, N. Y., Geneva, Seneca Falls & Auburn R. R., Combination car, *1408
Service cars. (See Work cars)
Service and tower wagons:
——Dubuque, Ia., Removable tower, *483
——Gasoline emergency wagon with fender, New York City, *709
——Operating costs for one year, 1157
Sheboygan (Wis.) Railway & Electric Co., Transfer of stock control, 100
Shelters. (See Waiting stations)
Shore Line Electric Ry. (See Saybrook, Conn.)
Shreveport, La., Rate cases, 1356
Sidings. (See Track construction)
Signal lenses, Glass for [Churchill], 446
Signals:
——Automatic, Washington & Great Falls Railway & Power Co., *89
——Automatic train control, Report on, by American Railway Association, 1150
——Block system:
Boston Elevated Ry., Maintenance details, *660
Chester Short Line of Philadelphia Rapid Transit Co., *1348
Indiana, Proposed installations, 1166
Maintenance organization and costs of automatic block system, Illinois Traction System, *1070
New York State Rys., *836
Puget Sound Electric Ry., 96, 889
Single-track automatic, without preliminaries (Union), *198
Statistics for 1913, 32
Switch indicator (U. S. & S. Co.), *1000
——Cab, Simmen system, on Mesaba Ry., *71
——Classifying signal failures, 806; [Leisenring], c883; Comment, 857; [Brown], c884; [Hovey], c933; [Stadelman], c981; [Peddle], c1040
——Crossing:
Oscillator (Protective), *734
(Protective), *92, *734
Wigwag, Portland, Ore., *677
——Illumination of, Discussion in Chicago, 879
——Interlocking plant rules in Missouri, 150
——Joint committee meeting of Engineering and Transportation & Traffic associations, 663
——Report of American Railway Engineering Association, 667
——Simmen system, Mesaba Ry., *71
——Tail-light and indicating train signals [Nichols-Lintern], *681
——Traffic regulation by semaphore, Philadelphia, *1033
——Trolley contactor signal on individual pole, *1408
Signs on carhouses, Washington, D. C., 433, *1156

Signs on cars:
——Baltimore route number sign box, *143
——Explanations of door operating mechanism on fully-inclosed cars, 805
——Illuminated train number, Detroit, *49
——International Ry., Buffalo, 611
——Kansas City, 746, 1004
——Safety-first signs in Portland, Ore., *316
——Side location Buffalo, 59
Signs on shops, Illinois Traction System, 352
Single-phase railways:
——Arles-sur-Tech-Prats de Mollo, Switzerland, 820
——Belfort, France, 1323
——Electrical maintenance, New York, Westchester & Boston Ry., *394
——Inductive interference. (See Transmission lines)
——Lauban-Königszelt line, Silesia, 1076
——Maintenance of mechanical equipment on New York, Westchester & Boston Ry., *220, 643
——Philadelphia-Paoli line of Pennsylvania R. R., System, *860; Comment, 858
——Power distribution and inductive interference in Switzerland, 718
——Rhaetian Ry., Novel feature of locomotives, *760
——Vienna-Pressburg line, *190
Smoking on cars:
——Atchison, Kan., Order against, 561, 612
——Brooklyn Rapid Transit, Permit, 1427
——Chicago rules, 612
——International Ry., Buffalo, 209
——New York City, 59, 1060
——San Antonio, Tex., Prohibition, 1060
——Wheeling, W. Va., 433
Snow removal:
——Michigan United Traction Co., *483
——New York City, 727
——Philadelphia Rapid Transit Co., 746
——Responsibility, Toronto, 843
Snow removal conference in Philadelphia, 931
Snow scrapers:
——New York State Rys., Work at Syracuse, *835
——Two-section steel-blade, Grand Rapids, Mich., *549
Snow sweeper, Outboard, New York Rys., *838
Society for Electrical Development, 1382
South American section of World's Trade Directory, 759
South Carolina Light, Power & Railways Co. (See Spartanburg, S. C.)
South Covington & Cincinnati Street Ry. (See Covington, Ky.)
Southern Iowa Railway & Light Co. (See Albia, Ia.)
Southern Pacific Co. (See San Francisco)
Southwestern Electric & Gas Association, Convention proceedings, 1139, 1206, 1253
Spartanburg, S. C., South Carolina Light, Power & Railways Co., Annual report, 845
Special work. (See Track construction)
Speed in miles per hour during non-rush-hour period for different systems, 867
Spitting in cars:
——Buffalo crusade, 283
——Louisville, Ky., Campaign, 335
Spokane, Wash., Washington Water Power Co., Annual report, 742
Springfield (Ill.) Light, Head & Power Co., Boiler practice, 1189
Springfield (Mo.) Gas & Electric Co. and Springfield Traction, Valuation case abstract of brief presented to Commission, 989
Springfield, Ohio, Electrolysis mitigation. Bulletin issued by Bureau of Standards [Rosa and McCollum], 225, c369; Comment, 345; Tests, 646; Corrections, 722
Springfield (Vt.) Electric Ry., Appraisal values, 560
Sprinklers. (See Fire protection)
Stark Electric Ry. (See Alliance, Ohio)
Statistics:
——Accidents classified [Maher], 708
——Austria, 776
——Block signal installations in 1913, 32
——Canadian electric railways, 1036
——Cars operated in rush-hour in different cities, 233
——Cars ordered in 1913. Returns by railway companies, 30; Comment, 2
——Census bureau of reports of electric railways, 80, 123, 304, 538, 671, 700
——Electrical industry in United States and Great Britain, 1202
——Connecticut electric railways, 153
——Dividend increases and deductions in 1913, 280
——Fare rates as affected by the riding habit [Hild], 229; Discussions [Coates], 247; [Nash], 243, 315; [Stearns], 255; Comment, 218
——Great Britain, 331
——Holding companies [Ford], 23
——Indianapolis interurban development, 158
——Japan's electrical progess, 1049
——Liverpool Tramways, 1097
——London railways, 296
——Maine electric railways, 782
——Mileages in service and proposed by heavy electric traction systems in 1913 [Burch], 129
——Miles of track per inhabitants in different cities, 233
——New York Rys., Maintenance of rolling stock, *915; Comment, 909
——Paris subways, 80
——Passenger traffic by zones in Glasgow, 231
Statistics: (Continued)
——Quebec, Data showing growth of city, 1132
——Rail production, 1138
——Rails and pig-iron in 1914, 704
——Receiverships and foreclosure sales in 1913, 33
——Riding habit and its effect on the rates of fare [Hild], 229; Discussions [Coates], 247, [Nash], 253, 315, [Stearns], 255; Comment, 218
——Speed in miles per hour during non-rush-hour period for different systems, 867
——Switzerland Rys., 1912, 1260
——Tie timber in the United States, 183
——Toronto, Ont., 381
——Track built in 1913 in United States and Canada, 28
——Traffic statistics, Pittsburgh Rys., Methods of collecting data, *924
——Trend of technical branches of railway industry, 2
Steam railroad electrification. (See Heavy electric traction)
Steel:
——For city car construction, c1463
——Heat-treated, in locomotive construction, 1376
Stone & Webster Management Association, Annual report, 331
Stopping of cars:
——Comparison of near-side and far-side stops, 1208
——Kansas City, Alternate stops, 850
——Little Rock, Ark., 1233
——New York City, 909, 949; [Lyne], c1041; c1101
——Philadelphia, Near-side stop [Fairchild], c1154
——Skip-stop idea, Developments in, 908
——Springfield, Ill., Near-side stop, 1480
Storage battery cars:
——Milledgeville, Ga., *1350
——New York blizzard conditions, 424
Store-rooms:
——Organization and work, Public Service Ry. [Inglehart], 454, 459
——Perpetual inventories [Yungbluth], c87
Storms on the Atlantic Coast, Record of railway companies, 552
Strikes:
——Arbitration versus strikes, Comment on report of Amalgamated Association, 753
——Colorado Springs, Colo., 894
——Delaware & Hudson R. R., 163
——Dublin, Ireland, 1225
——Hazleton, Pa., 201, 894
——Indianapolis, 52, 94, 146, 368, 398, 488
——Kansas Union Traction Co., 842
——Montpelier, Vt., 379, 492, 603
——Preparation for and provision against, 163
——Terre Haute, Ind., 683
——Webster, Monessen, Belle Vernon & Fayette City Street Ry., 1005, 1114
——Westinghouse Works, 1357
Substations::
——Agawam, Mass., Amherst Power Co., *450
——Bottrop, Germany, *1109
——Chicopee, Mass., Amherst Power Co., *450
——Indiana Union Traction Co., Combined with waiting station, *823
——Mesaba Ry., *71
——Outdoor versus indoor [Macomber, Fullerton, Hunt and Perry], *448
——Pittsburgh & Butler Street Ry., *166
——Seattle Municipal Ry., *1375
——1200-volt, Ueberetsch Ry., *764
Subways, Demand for, 755
Suction cleaner, Home-made [Ingle], *887
Superior, Wis., Municipal ownership proposed, 149, 602
Surveyor's short cut [Bernard], *676
Suspension, Three-part, straight-line [White], *732
Sweden, Extensions and improvements of state railways, 301
Switch hole, Making self-cleansing, Connecticut Co., *729
Switch indicator with time release and power-saving device [Union], *1000
Switch stands [Mitchell], *475
Switches, Electric, Selector type disconnecting [Westinghouse], *682
Switches, Track:
——Anti-straddling tongue switch [New York], *679
——Derailments at facing point, Preventing, Public Service Ry., *728, 1402
——Freezing prevention of electrically-operated, Connecticut Co., *373
——Hook-heel (Pennsylvania), *1161
——Tadpole switch, with replacement features (St. Louis), *1352
Switzerland:
——Arles-sur-Tech-Prats de Mollo single-phase railway, Notes on system, 820
——Electrification of railways [Huber-Stockar], 717; Discussion, 705
Report of Commission on choice of systems. Single-phase operation favored [Wyssling], *524; Comment, 508
Statistics of state railways, 188
Supplementary report to the Administration Council of the Federal State Railways [Dinkelmann], 657
——Loetschberg Railway, Experience with single-phase, *529
——National Exhibition, Railway exhibits, 1215
——Rhaetian Ry., Single-phase, 273, *760
——Statistics for 1912, 1260
——Zurich Municipal Rys., Rail-cleaning car of suction type, *1223
Syndicalism [Brooks], 38

(Abbreviations: *Illustrated. c Correspondence.)

T

Tacoma, Wash.:
——City-built road to be operated by private company, 554
——Municipal ownership proposed, 150
——Puget Sound Electric Ry.:
Block system between Seattle and Tacoma, 96, 889
Fare schedule, 1304
Rate case, 1059, 1174
——Tacoma Railway & Power Co.:
Efficiency department, 1175
Operating agreement, 843
Tariff in the electric railway industry, Comparison of old and new, 83
Taxation of public service corporations, Report of Annual Tax Association, 1116
Taxes in Ohio, Decision, 203, 555
Taylor-Wharton Iron & Steel Co., Stock increase, 1008
Technical commission. (See Heavy electric traction)
Technical journal:
——Making of a [Mehren], 553
——Place of, in promoting efficiency, 509
Technical school and its relations to the electric railway business, 506; [Buck], c1040
Telephone and telegraph disturbances. (See Transmission lines, Inductive interference)
Telephone jack boxes on Butte, Anaconda & Pacific locomotives, 1157
Temporary structures versus permanent, 111
Terminal clocks. (See Clocks)
Terminals at Akron, Ohio, Proposed, 940
Terre Haute, Indianapolis & Eastern Traction Co. (See Indianapolis, Ind.)
Tests of equipment:
——Inspection test set to locate incipient defects in car wiring [Ransom], 1282
——Circuit-breaker testing [Squier], *1465
——Contactor coils tested without removal [Case], 1464
Third Avenue Ry. (See New York City)
Third-rail:
——Protected (Redman-Merz), *89
——Pure ingot iron for, American Rolling Mill Mill Co., 1286
Third-rail shoes:
——Detachable shoe [Potter], *1102
——Equipment defects [Squier], *993
Tickets:
——Sale on cars not allowed, Seattle, Wash., 335
——School tickets in Jackson, Miss., 336
——Zone system, Milwaukee Electric Railway & Light Co., *185
Tie-holder for spiking new ties [Taylor], *937
Ties:
——Beveled-tie practice, Brooklyn Rapid Transit System [Bernard], *594
——Future material in the United States [Gibson], 183
——Protection from mechanical destruction [Weiss], 182
——Records, Methods of keeping [Howson], 184
——Reinforced-concrete, with block fastenings [Percival], *1223
——Report of American Railway Engineering Association, 664
——Studies of experimental ties [Waterman], 182
——Treatment (See Timber preservation)
Timber preservation:
——Discussion by Southwestern Electrical & Gas Association, 1253
——Protective effect of creosote on yellow pine and cedar piles in Galveston Bay, *1213, *1281
——Report of American Railway Engineering Association, 665
——Specifications, Suggestions [Powell], 182
——Studies of experimental ties [Waterman], 182
——Tie-treating plants, Statistics, 1086
——Yale Forest School, Notes on work of [Record], 182
Time-table rack, Adjustable, *1048
Time-tables (See Schedules and time-tables)
Titusville, Pa., Erie & Central Pennsylvania Ry., Sale, 99
Toledo, Ohio:
——Toledo Railways & Light Co.:
Attitude of city administration toward, 276
Derrick car with tower, *677
Fare rates, Statistics, 248
Franchise negotiations:
Communication to City Council, 200
Proposition with changing fare to provide fixed dividend return on fixed valuation, 326
City Council declines proposals of company, 376
Administrative committee of City Council, 425
Delayed advertising plans, 554
Schreiber ordinance, 735
Free rides. Statement of Judge Killits. Losses under the ordinance. Mayor counsels against disorder. Mr. Doherty's discussion of issue, 771; Comment, 754
Temporary operation at three cents proposed, 841
Ordinance proposed by company, 891

Toledo, Ohio:
——Toledo Railways & Light Co.:
Franchise negotiations: (Continued)
Modifications suggested by city solicitor, 939
Basis of renewal, 1002
Agreement on most of terms, 1050
Negotiations abandoned, 1110
Publicity campaign by company, 1165
Report of special franchise committee, 1224, 1293
Draft of Toledo Citizens' Franchise Association, 1354, 1410, 1470
[Coates], 1454
Publicity forum. Criticisms requested and answered in daily papers and leaflets in cars, 1250
Reorganization, 207
Trolley-pole straightener, *1406
——Toledo & Western R. R., Special track work, Solid and manganese [Swartz], c1155, c1280
Topeka, Kan.:
——Investigation of earnings of railways, 328
——Topeka Street Ry., Premiums for reducing coal consumption, 384
Toronto, Can.:
——Fare increases advocated, 379
——High-tension d.c. line to Berlin, 1162
——Motor buses, 499, 1303
——Municipal ownership proposed, Mayor Hocken re-elected, 93
——Passenger statistics for 1913, 381
——Toronto Ry.:
Purchase complications, 377
Valuation. Intangible values in settlement cases, 5
——Transportation problems, 276, 1176
Tower cars:
——Side adjustments, Oklahoma Ry., *372
——Toledo Railways & Light Co., *677
Tower wagons. (See Service and tower wagons)
Towers, Construction notes [Sothman], 451
Track construction:
——City streets, Construction in [Schreiber], 1257
——Crossing, T-rail steam road, *1406
——Derailments at facing-point switches, *676; [George], *728, 1402
——Discussion by New England Street Railway Club, 987
——Drainage, Twin City Rapid Transit Co., *81
——Economies in permanent waterways, 111
——Edmonton, Alberta [Saunders], *878
——Guard rails, special work and crossings [Mitchell], 476
——Hard-center mates with solid support at ends (Pennsylvania), *1219
——Insert special work, Manard steel (Pennsylvania), *1107
——Life of concrete track, Richmond, Va. [Johnston], *1283
——Manganese steel castings, Difficulties in the manufacture of, *1221
——Manganese steel special work:
Buenos Ayres subway system, *1286
Chicago. Experience with solid and insert. Service results, *970; Comment, 959; [Cram], c1040; [Weston], c1343
Cincinnati Traction Co.'s experience [Berry], c1099
Minneapolis Street Ry., Experience [Wilson], c1100
New York Rys., Insert turnouts at end of Williamsburg Bridge, *1158
Omaha [Findley], c1281
Pacific Electric Ry., Experience [Johnson], c1099
Toledo & Western R. R., Experience [Swartz], c1155, c1280
St. Louis, Experience [Hawkins], c1280
[Schreiber], 1259
——Mesaba Ry., *69
——[Mitchell], *472
——Report of American Railway Engineering Association, 664
——Siding, Through type electric [Mitchell], *472, 474
——Special work, Renewable center or solid manganese, 700
——Specifications of New York Public Service Commission [Mills], *317
——Statistics of 1913 for United States and Canada, 28
——Switch stands [Mitchell], *475
——T-rail [Mitchell], *476
——Track-laying machine, Salt Lake & Utah R. R., *87
——United Railways & Electric Co., 91
——Welded joint and rail brace, *1467
——(See also Rails; Ties; Track construction)
Track grinder, Portable, with cup wheel (Indianapolis), *784
Track maintenance:
——Electric welding [Price], 471
——Freezing of switches, Preventing, *373
——[Mitchell], *472
——"Old man" for drilling, Brooklyn [Taylor], *996
——Rail elevation and pantographs, 1428
——Rail-wear measurements, San Francisco, 1032
——Reclaiming old switch tongues and general special work, *592
——Special work, Solid manganese or renewable center, 700, *970
——Special work service records, Brooklyn [Bernard], 1217
Track maintenance: (Continued)
——Switches, Self-cleaning tongue, Connecticut Co., *729
——Tie-holder for spiking new ties [Taylor], *937
——(See also Track construction)
Trackless trolley double-deck bus, Brighton, Eng., *783
Tractor, Electric, Pennsylvania R. R., *130
Traffic investigation by American Electric Railway Association committee, Cost of passenger service, 1383
Traffic investigations, Cities:
——Boston, Report of joint commission, 675
——Fall River, Mass. Report by D. C. and Wm. B. Jackson, *816
——Improved methods outlined [Larson], 180
——Norfolk, Va., Chamber of Commerce, 1443
——Philadelphia, Report by A. Merritt Taylor. Various tables, 76
——Relation to railway operation, management and regulation [Larson], 177
——Schenectady, N. Y., 691
——Winnipeg Electric Ry., Report [Feustel], 865
Traffic promotion:
——Boston, Maps of Bay State Street Ry. sent to educational institutions, 92
——London Electric Ry., Posters, *1144
——Quebec Railway, Light & Power Co., *1130
Traffic regulation:
——Police chiefs discuss uniform, 1480
——Semaphore signals for, Philadelphia, *1033
Traffic rules, Columbus, Ohio, 1176
Traffic statistics department, Pittsburgh Rys., Methods followed, *924
Trailer operation, Houston, Tex., 1207 %
Train operation, High accelerating tests in suburban service, 1429
Train resistance due to curves, grades and sliding wheels [Mitchell], 472
Train resistance tests at University of Illinois, *1388
Training of men (See Employees)
Transfers:
——Nebraska decision, 1012
——Pittsburgh Rys., *867
——Seattle Municipal Ry., Ordinance, 1375
Transformer case, Light-weight, pressed steel (Pittsburgh), *785
Transformers, Cooling with surface condensers [Palmer], *270
Transmission lines:
——Augusta (Ga.) Stevens Creek Line.
——Ballasting suspension insulators [Buck], *520
——Binoculars to detect line troubles [Cadle], 1216
——Chicago, Milwaukee & St. Paul Ry., Rocky Mountain division, *34
——Inductive interference:
General methods available for preventing and overcoming, 960
New York, New Haven & Hartford R. R. Details of auto-transformer plan of reducing interference and of circumstances leading to its adoption. [Murray], *706; *960; Comment, 958
Prevention methods in France [Girousse], *82
Prevention on Loetschberg Ry., *529
Report of California joint committee, 313
——Lightning troubles [Nicholson], 453
——Mechanical strains in a.c. conductors, 195
——Multi recorder [Steinmetz], 522
——Ontario Hydro-Electric Power Commission, Interruption of service, 327
——Oscillations set up by switching [Faccioli], 454
——Pacific Coast installations [Downing], 453
——Pacific Power Co., Tie line between Bishop and Lunry, Cal., 370
——Peak voltage voltmeter, *196
——Report of American Institute of Electrical Engineers, 451
——Reports of National Electric Light Association, 1272, 1325
——Salmon River Power Co., *1380
Transportation:
——Pass evil, Reduction of. Politicians as grafters, 441
——Report of American Electric Railway Association committee on cost of passenger service, 1383
Trenton (N. J.) & Mercer County Traction Co.:
——Safety first campaign, 384
——Ticket system, Effort to abolish, 1060, 1113
Tri-City Railway & Light Co. (See Davenport, Ia.)
Trolley bases:
——Air-operated, with retrieving feature [Wasson], *1289
——Defects [Squier], *831
Trolley catcher, Ball-type (Q-P Signal Co.), *322
Trolley ears, Troubles with [Harte], *935
Trolley pan with angle-iron guides, Yonkers, R. R. [O'Hanlon], *420
Trolley-pole straightener, Toledo, *1406
Trolley poles, Defects [Squier], *779
Trolley wheels, Defects [Squier], *543
Trolley wire:
——Determining correct position on curves [Dixon], *1042
——Selection of best wire, Factors to be considered [McKelway], 647
Trolley wire splice with copper wedge clamp [Holland], *997
Truck handling (See Repair shop practice)
Trucks, Car:
——Cleveland, Ry., Center-entrance car, 458
——Correcting derailment troubles from maximum trucks [Williams], 782
——Lengthened trucks to stop nosing, Albany, N. Y., 143
——New York, Westchester & Boston Ry., 223
——Progress in design (Standard Motor Truck Co.), 937
——San Francisco Municipal Rys., *890
Tungsten lamps (See Lighting of cars)
Turbines, Hydraulic, Selection of [Seastone], *1271
Turbo-generator, Short-circuited test, without external protection, by Westinghouse Electric & Mfg. Co., 423
Twin City Rapid Transit Co. (See Minneapolis, Minn.)

U

Ueberetsch Ry., 1200-volt d.c. system [Gyaros], *764
Underground trolleys, Difficulties with, 768
Union Electric Co. (See Dubuque, Ia.)
Union Traction Co. (See Albany, N. Y.; Coffeyville, Kans.)
Union Traction Company of Indiana (See Anderson, Ind.)
United Power & Transportation Co. (See Camden, N. J.)
United Railroads (See San Francisco)
United Rys. (See St. Louis, Mo.)
United Railways & Electric Co. (See Baltimore)
Usui-Toge Ry., Japan, Electrification details, *1393

V

Valuations (See Appraisal of railway property)
Vancouver, B. C.:
——British Columbia Electric Ry.:
Annual report, 97
Cars of arch-roof type, 515
Clocks, Running-time terminal, *547
Fare increase report, 1479
Interruption of service, 248
Suburban traffic, Revision of percentages for, 157
Wheel skid for braking cars on grades [Werth], *546
——Eburne and Lulu Island Ry., Waiting station, *486
Vehicular traffic:
——Fall River, Mass., *816
——Remedies for obstruction, by co-operation of railway in Rochester, N. Y., with teamsters' union, 699
Ventilation of cars, Philadelphia Rapid Transit Co., 746
Vienna, Austria:
——Accident campaign, with moving pictures and posters, *188
——Single-phase line to Pressburg, Hungary, *190
Virginia, Minn., Mesaba Ry., Construction and operating features. Complete cab-signal system, *68
Virginia Railway & Power Co. (See Richmond, Va.)
Voltmeter for indicating peak voltages (Simplex), *196

W

Wages (See Employees)
Waiting stations:
——Combined with salesroom, Cambridge, Ohio, *537
——Concrete, Pacific Electric Ry., *90
——Extensible platform for stations on curves, *421
——Hartford, Conn., *966
——Indiana Union Traction Co., *823
——Mesaba Ry., *69
——Portland, Eugene & Eastern Ry., *359
——Securing stations in novel way, Kansas City, 1304
——Vancouver, B. C., Eburne and Lulu Island Ry., *486
——Wood station faced with tin, Quebec, *1133
Washing of cars:
——Portable stands replace ladders, Boston Elevated R. R. [Dermody], *419
——Water heater, Instantaneous electric, *47
Washington, D. C.:
——Capital Traction Co.:
Cars, Semi-steel prepayment, *272
Signs on carhouses, *1156
——Fare case, 1232
——Municipal ownership:
Crosser bill, 277, 600
Favored by Commissioners of District of Columbia, 939; Comment, 957
Hearing on Crosser bill. Arguments against public ownership. Testimony of railway officials [King, McCarter, Crawford], 1091, 1148; Comment, 1129
Hearing on Crosser bill, held at request of American Electric Railway Association. Testimony [Kerr], 1145; Comment, 1183; [Harries], 1193; [Rosecrantz], 1195; [Clark], 1198; [Hendershott], 1203; [Nicholas], 1204; Comment, 1184, 1242; Other testimony, 1275

(Abbreviations: *Illustrated. c Correspondence.)

Washington, D. C.:
——Municipal ownership: (Continued)
Action of House Committee on Crosser bill, 1353
Prospects, 1458
——Washington & Great Falls Railway & Power Co., Automatic signals, *89
——Washington Railway & Electric Co.:
Annual report, 1359
Bond issue, 946
Car for platform instruction; Open-side [Wenner], *543
Christmas entertainment and profit sharing, 102
Company section meeting, 529
Washington Public Service Commission, Annual report, 1109
Waste paper, Handling of, Detroit, 1256
Water heater, Instantaneous electric, for car washing, Cincinnati, *47
Water-power legislation, 1400
Water power stations (See Power stations)
Waterloo (Ia.), Cedar Falls & Northern Ry.:
——Freight interchange, 1060
——Safety first movement, Results obtained [Welsh, Jr.], 984
Waterways, Economies in permanent, 111
Watt-hour meters in cars, Success of, El Paso, Texas [Morse], 1206
Watt-hour meters for showing demand [Westinghouse], *1220
Waupaca (Wis.) Electric Light & Railway Co., Freight transportation, 498
Webster, Monessen, Belle Vernon & Fayette City Street Ry. (See Charleroi, Pa.)
Welding, Special methods:
——Arc welding sets (Westinghouse), *997
——New uses, Third Avenue Ry. [Parsons], *482
——Oxy-acetylene equipment at Decatur shops of Illinois Traction System, *1438
——Portable outfit for track work with arc method (Welding Materials Co.), *274
Welding, Special methods: (Continued)
——Track and rolling stock repairs [Price], 471
Welfare work (See Employees)
West India Electric Co., Annual report, 896
West Jersey & Seashore R. R. (See Camden, N. J.)
West Penn Traction & Water Power Co. (See Pittsburgh)
West Shore Rys. (See Oneida, N. Y.)
West Virginia Public Service Commission rate making power upheld, 328
Western Red Cedar Association, Annual meeting, 169
Western Society of Engineers, March meeting, 673
Westinghouse, George:
——Biographical sketch, *590
——Memorial proposed, 739
——Pioneer spirit of, 619
——Tributes to, 672
Westinghouse Air Brake Co., Prizes for story, 1108
Westinghouse Electric & Mfg. Co., Annual report, 1171
Wheel skid for braking cars on grades, Home-made [Werth], *546
Wheels:
——Maintenance of steel wheels, Minneapolis, *142
——Small wheel coming into its own, 753
——Solid-wrought, carbon steel, Proposed specifications, Discussion by sub-committee of Engineering Association, 86
——Squeak deadener, Twin City Rapid Transit Co., *48
Williamsville, N. Y., Buffalo & Williamsville Electric Ry., Sales, 56, 1057
Willoughby, Ohio, Cleveland, Painesville & Eastern R. R.:
——Annual report, 793
Willoughby, Ohio, Cleveland, Painesville & Eastern R. R.: (Continued)
——Remodeling sixteen-year-old cars and other maintenance features, *650
Winnipeg Electric Ry.:
——Prepayment cars, 798
——Reports on service [Feustel], 865
Winnipeg hydro-electric developments, 426
Wiring diagrams of commutating pole motors, Westinghouse and General Electric, *1285
Wisconsin Electrical Association:
——Convention proceedings, January, 1914, 137, 175
——Presidential address [Winslow], 136; Comment, 163
Wisconsin-Minnesota Light & Power Co., 1475
Wood preservation (See Timber preservation)
Worcester (Mass.) Consolidated Street Ry., Fare hearing, 797
Work cars:
——Boston Elevated Ry., Emergency cars, Table showing list of tools carried [Dana], *1137
——Crane motor car, Home-made, Utica lines of New York State Rys. [Ayers], *1044
——Efficiency in service cars, 67
——First aid equipment, 1460
——Tools for, List of, Boston [Dana], *1137
Workmen's compensation law (See Employees)
World's busiest spot, 1120
Wrecking derrick car, Double-ended, New York Central Road, *1046
Wrecks (See Accidents)

Y

Yonkers (N. Y.) R. R., Trolley pan with angle-iron guides [O'Hanlon], *420
York (Pa.) Rys., Annual report, 430

AUTHOR INDEX

A

Abbott, Jack. Handling long girders on a short curve, *832
Abendroth, H. G., Overhead charges in valuations, 1434
Allen, C. Loomis. How to have good public relations, 7
Anderson, H. W. Relations of public service companies and the public, 241
Armstrong, A. H. Design of electric locomotives, 13
Ayling, C. L. Purchased power and the street railway, 9
Ayers, J. R. Home-made crane motor work car, *1044

B

Bell, Louis. Distribution of power for traction, 12
Bernard, M. Beveled-tie practice on elevated structures, *594
——Special work service records, 1217
——Surveyor's short cut, *676
Berry, E. H. Solid and manganese steel special track-work experience, c1099
Bigelow, C. H. Rush-hour fallacies, c777
Bigelow, E. S. The Interstate Commerce Commission Accounts, c777
Black, C. N. Opportunities before the American Association, 6
Boggs, L. S. Maintenance and depreciation, c828
Boyce, W. H. Red stripes painted on walls to locate fire fighting equipment, 592
Boyer, W. L. Hardened pins and special bushings, 371
Boynton, B. F. Safety inter-car gate and street semaphore at Portland, Ore., *677
Boynton, E. C. Well-built trucks a help for journal brass troubles, c479
Brady, A. W. Central Electric Railway Association and the interurbans, 8
——Government ownership, 1455
Bramble, D. S. The Interstate Commerce Commission accounts, c777
Bridges, M. H. Interstate classification of accounts, c883
Brinckerhoff, F. M. Cost of useless weight in steel cars, c1153
——Design of rapid transit cars, 16
——M. C. B. brass, c369
——Westchester journal brass, c*540
Brion, E. A. Interstate classification of accounts, c980
Brown, J. W. G. What constitutes a signal failure, c884
Buchanan, W. T. Publicity for electric railways, 1209
Buck, A. M. Technical schools and the electric railways, c1040
Bullock, H. A. Organization for a "Safety First" campaign, 711
Burch, E. P. Electrification to date, 129
Burdett, E. W. Municipal ownership versus private enterprise, 19

C

Cade, G. B. Tentative system of accounts, c829
Cadle, C. L. Binoculars to detect line trouble, 1216
Cameron, G. M. Apprentice training on New York State Railways, c722
Case, F. E. Testing type M contactor coils without removal, 1464
Casey, T. W. Status of prepayment-car patents, c1462
Casey, W. M. A. E. R. A. section work at Denver, 826
Chubbuck, O. P. Peg board for ordering cars to the shops for inspection, *593
Clark, C. H. Breaking up pavement with a plow at Cleveland, *1346
Cole, W. W. Maintenance and depreciation, c881
Colt, R. M. Old and new features at Sacandaga Park, 927
Connette, E. G. Maintenance and depreciation, c881
Cooley, M. E. Factors determining a reasonable charge for public utility service, 124
Crafts, P. P. Modern public policies of public service corporations, 982
Crall, J. H. Joint weight and inspection bureau, 467
Cram, R. C. Rail file for new joint work, *194
——Renewable center or solid manganese special work, c1040
Cummings, J. J. Buying and building cars, 15

D

Dana, Edward. Removal of surface obstructions, *1137
——Sand from tidewater to rail in Boston, *346
Davies, H. J. The Interstate Commerce Commission accounts, c777
Dement, W. F. Movies for electric railways, c829
Dermody, M. Portable car-washing stands at Boston, *419
Dixon, R. D. Determining the correct position of the trolley wire on curves, *1042
Dolge, William. San Francisco Municipal Railway report, c1401
Doyle, J. S. Practical "safety first," 709
Dudley, S. W. Air brake performance on modern trains, 362
Duncan, John. Pipe bender and pole straightener, *781

E

Eldridge, Chauncey. Increased cost of electric railway operation, 7
Elkins, A. F. The Interstate Commerce Commission Accounts, c777
Elliott, C. E. Credit of public utility companies, 1448
Ennis, R. W. A "safety first" double acrostic, c1343
Erickson, Halford. Regulation or profit-sharing, 257
——Some problems of public utility accounting, 306
Evans, R. H. Why use any kind of journal brass? c417

F

Fairchild, C. B., Jr. Near-side stop in Philadelphia, c1154
Findley, R. H. Solid and insert manganese steel special work, c1280
Foote, F. J. Dies for removing worn slots of brush-holders. Chuck for turning up bearings, *1045
Ford, F. R. Holding company—its advantages and disadvantages, 23
Forse, W. H., Jr. Improvements in method of accounting for fares, c884
——Tentative system of accounts, c829
Foster, E. C. Reasonable rate of return, c1278
Fuller, W. W. Accident prevention engineer, 934
Fullerton, Irwin. Do low fares increase riding? 770

G

Ganz, A. F. Electrolysis mitigation, c933
Gardiner, W. H. Reasonable rate of return, c1279
Gaw, C. B. Home-made car lightning arrester, *1402
Gay, E. H. Correction of the street railway situation, 14
George, H. H. Derailments at facing point switches, *728
Gibbs, George. European railway electrification, 11
Glover, M. W. Tentative system of accounts, c828
Gould, E. F. Stub-tooth bull-nose gears, *1216
Gove, W. G. Enthusiasm essential to personal progress, c539
Green, Alfred. Evolution of railway motor lubrication, *308
Gyaros, W. C. 1200-volt d.c. Ueberetsch Railway, *764

H

Harrigan, J. R. Center-entrance steel cars for interurban service, c1278
Harte, C. R. Overhead line problems, *885, *935, *994, 1105
Hawkins, C. L. Solid and insert manganese steel special work, c1280
Hawley, C. S. Manufacturer's relation to the industry, 19
Hazzard, H. C. Problem of co-operative publicity, 967
Hering, Carl. The circular inch versus the circular mil, c589
Hild, F. W. Effect of rate of fare on riding habit, 229
Holst, E. W. End thrust on journal brasses, c479
——Rolling stock design, 10
Hovey, M. H. Limited definition for signal failure advocated, c933
Humphreys, A. C. Business training for the engineer, 366

I

Ingle, C. A. Car cleaner formula and home-made varnish remover, 677
——Home-made suction cleaner, *887
——Maximum wear from trolley wheels, *592

(Abbreviations: *Illustrated. c Correspondence.)

AUTHOR INDEX—(Continued)

Ingle, C. A. (Continued)
——Recutting and transferring worn brushes from motor to motor, 543
——Splicing broken trolley poles, 936
Insull, Samuel. Centralization of power supply, 914

J

Jackson, Alexander. Development of timetables, 873
Jacquin, Charles. Trial of booster control in Paris, *302
Johnson, A. R. Equipment and stores economies on the Third Avenue Railway system, *780
——Shop work on a piece-work basis, 373
——Third Avenue Railway truck-overhauling shop, *1077
Johnson, E. C. Solid and manganese steel special track-work experience, c1099
Johnston, A. L. Life of concrete track at Richmond, Va., *1283
Johnstone, John. Home-made fender, *1102
Joyce, A. St. G. Management by large operators, 22
——Stepless double-deck car for Columbus, Ohio, *582

K

Kasemeier, E. L. Compiling operating expenses, 1445
Keller, T. L. Detroit coil-baking oven, *1464
Kittredge, G. W. Systems for the reduction of electrolysis, c541
Kreusser, O. T. Statuary bronze finish of car hardware, *481

L

Lancaster, W. C. Electrification of the Canadian Northern Montreal tunnel and terminal, *572
Larson, C. M. Street railway traffic surveys in relation to railway operation, management and regulation, 177
Layng, J. F. Railway motors, *466
Lee, Barrett. Commissions on electrification, c778
Leisenring, John. Suggestion for classifying signal failures, c883
Litchfield, Norman. Gear fits, 320
Lloyd, M. M. Cleaning and disinfecting of street and interurban cars, 928
Logan, K. H. (See Rosa, E. B.)
Longhurst, A. Ground detectors for a.c. rolling stock, *729
Lyne, G. H. The near-side stop, c1041

M

McCarter, T. N. Future of public utilities, 871
McCollum, Burton. (See Rosa, E. B.)
McGraw, J. H. Organization and teamwork, 462
McIntire, J. B. Freight transportation on the "Harmony Route," *1034
McKelway, G. H. Best trolley wire, 647
——House-moving jobs, 824
——Marking location of manholes, *730
Macleod, Keith. Montreal armature bearing press, *1104
Maher, E. A., Jr. Possibilities of the safety campaign, 708
Martin, T. C. Company Sections in the National Electric Light Association, 518
Mathews, E. L. Granite-block paving for shallow T-rail on parked streets, *271
——Red lamp used to protect fire extinguishers from freezing, *545
Mills, E. L. Track specifications of New York Public Service Commission, *317
Mitchell, L. A. Track construction and maintenance, *472
Mortimer, J. D. Is regulation by commission a permanent part of our economic scheme? 21

N

Nash, L. R. Effect of rate of fare on riding habit, 253
Nash, L. R. (Continued)
——What constitutes a reasonable return? c1153
Neereamer, A. L. Our Traffic Association, 1450
Norris, H. H. Present tendencies in self-improvement, 873
Norton, W. J. State regulation of utilities, 586
Norveil, F. D. Joint weight and inspection bureau, 470

O

O'Hanlon, Thomas. Trolley pan with angle-iron guides, *420

P

Palmer, H. R. Service condensers for cooling transformers, *270
Parsons, R. H. Car circuit breakers, *1283
——Device for connecting motor leads to controller used to run truck from under cars, *834
——Fan for operation with shafting, *1347
——Flexible lamp cluster for controller and motor work, *887
——Fuse-testing board of the Third Avenue Railway, *319
——Improvements on K controllers, *418
——Motor repair shop of the Third Avenue Railway, New York, *638
——New uses for electric arc welding, *482
——Stand for hanging rheostats to cars with one man, *1156
Peddle, C. R. Signal failure definition on double track lines, c1040
Pomeroy, L. R. Clasp brake versus the semi-circular journal brass, c369
Potter, R. R. Detachable contact shoe, *1102
——Maintenance of all-steel cars, c1212
——Shrink fits versus press fits, *321
Price, E. C. Repairs and welds of track and rolling stock by electricity, 471
Prouty, C. A. Valuation of railroads, 365
Purinton, A. J. Concrete-mixing car for reforcing decayed poles, *833

R

Ransom, E. D. Use of inspection test set to locate incipient defects, 1282
Reed, E. D. Electric traction on Lookout Mountain, *819
Reilly, P. T. Transportation comments, 1082
Renshaw, Clarence. Street railway motor control systems, 17
Rice, C. G. Analysis of damage claims, 1084
Rifenberick, R. B. Maintenance and depreciation, c881
Roberts, W. H. Progress in apprentice training, c539
Rollins, F. W. Public relations, 23
Rosa, E. B., and Burton McCollum. Electrolysis mitigation in Springfield, Ohio, *225
——Methods of mitigating electrolysis from street railway currents, *39
Rosa, E. B., Burton McCollum and K. H. Logan. Electrolysis test on a system of insulated negative feeders in St. Louis, *116

S

Sarvis, A. H. A "Safety First" instruction car, *595
Saunders, H. C. Track construction in Edmonton, Alberta, *878
Schreiber, Martin. New standard grooved girder rail sections, *812
——Plea for company sections, 250
——Track construction, 1257
Scott, James. Diagonal span construction on staggered poles used for single-track in Cleveland, *834
See, P. V. Maintenance of all-steel cars, c1212
——Manufacturing sign boxes and signs, *46
Sheremetewsky, M. Platform accidents in Moscow, c675
Squier, C. W. Defects in trolley bases, *831
——Effect of station spacing on schedules, *670
Squier, C. W. (Continued)
——Equipment defects, 318, *543, *779, *993, *1103, *1344, 1403, *1465
Stadelman, H. R. Definition of failure for signals of the contact type, c981
Stearns, R. B. Effect of rate of fare on riding habit, 255
——Present-day electric railway problems, 1135
Stivers, S. C. The Interstate Commerce Commission accounts, c777
Striezheff, S. Safety islands on wide avenues, *919
Sullivan, C. O. Joint weight and inspection bureau, 468
Swartz, A. Solid and manganese special work, c1155, c1280

T

Taylor, R. C. Roller bearings in place of journal brasses, c479
Taylor, W. K. "Old man" for drilling, *996
——Tie-holder for spiking new ties, *937
Tingley, C. L. S. Educational course of Accountants' Association, c1401
——Present-day influence of labor on legislation, 251
——Tentative system of accounts, c720
Townley, Calvert. Electrolysis mitigation, c1100
Tripp, G. E. Anti-trust legislation, 409
——Manufacturer and the industry, 18
——Public relations, 238

V

Van Brunt, A. J. "Safety First" movement on the Public Service Railway of New Jersey, 712
Van Zandt, A. D. B. Publicity for electric railways, c1279
Vaughan, H. H. Systems for main line electrification, c193

W

Wade, A. Maintenance of cars at Rome, Ga., 935
Weber, A. F. Maintenance and depreciation, c827
Webster, E. S. Centralized management of public utilities, 20
Weeks, H. E. The tentative system of accounts, c720
Weh, W. F. Index bureau, c778
Welsh, M. A., Jr. Results obtained from a "safety first" movement, 984
Wenner, W. A. Open-side car for platform instruction, *543
Werth, M. F. M. Home-made wheel skid for braking cars on grades, *546
Weston, G. W. Solid and insert manganese steel special track work experience, c1343
Wildman, J. R. Depreciation, c882
Williams, R. P. Correcting derailment trouble from maximum traction trucks, 782
Williams, T. S. Maintenance and depreciation, c720
Wilson, A. M. Co-operative training for electric railway employees, c589
Wilson, G. L. Solid and manganese steel special track-work experience, c1099
Wilson, H. L. Tentative system of accounts, c674
Wood, T. E. Shop practice, 929
Woodroofe, W. T. Carhouse and shops at Edmonton, Alberta, *510
——Electrolysis prevention in Edmonton, Alberta, *920
Woodward, J. T. What constitutes a reasonable return? c1153
Wyer, S. S. Facts regarding electrolysis, c1211
Wynne, F. E. Field control test in Toledo, 1447
Wyssling, Dr. Electrification of Swiss railways, 524

Y

Young, P. S. The tentative system of accounts, c720
Yungbluth, B. F. Perpetual inventories for storerooms, c87

(Abbreviations: *Illustrated. c Correspondence.)

PERSONAL

Ackerman, M., 158
Adams, Edward Franklin, 614
Adams, John H., 1477
Alderman, C. A., 435
Allerton, Sampel W., 500
Anglin, John F., 563
Anthony, S. Reed, 614
Ayres, Milan V., 852, 950

Babbitt, George H., 287
Bales, C. H., 1013
Bancroft, William A., 910
Bancroft, W. H., 338
Barnes, Charles R., 499
Blackham, H. J., 385
Boileau, W. E., 338
Bolen, Newton W., 901
Boucher, B. B., 1013
Boyd, John Y., 614
Beauchamp, Thomas, 747
Bell, Charles D., 1120
Bemis, Edward W., 1061
Beran, Theodore, 499
Berry, Orville, F., 104
Binkley, George H., 563, 693
Boardman, William H., 436
Braden, James A., 385
Breese, Paul, 1365
Brewer, Joseph H., 385, 563
Brill, Edward, 1366
Brizzolara, John, 1013
Broadhead, William A., 436
Brockway, W. B., *1013
Brown, F. W., 499, 614
Brown, George N., 434
Brown, J. Q., 435, *614
Brown, L. H., 385
Bryan, James H., 386
Buchsbaum, William, 563
Budd, Britton I., 613
Bunnell, Homer, 1120
Burgee, Joshua, 285

Calderwood, John F., *61
Calhoun, Patrick, 1061
Callahan, John W., 436
Campbell, James, 693, 1421
Campbell, W. C., 1305
Carithers, J. Y., 385
Carson, C. E., 158, 286
Carson, I. R., 435
Caster, H. O., 385
Chappelle, C. C., 950
Clark, C. M., 747, 1176
Clark, C. W., 158
Clark, H. M., 563
Clough, D. C., 338
Cobb, W. T., 285, 901
Cole, W. W., 61
Conway, John T., *747
Cooley, Mortimer E., 1176
Cooper, William, 287
Corrigan, Bernard, 105
Cox, C. D., 385
Crafts, P. P., 1478
Craigmile, Charles, 1305
Cramer, L. B., 613
Cummins, James Sheldon, 748
Cummins, Robert F., 564
Cummins, T. R., 1120
Cushing, Arthur, 1120

Daniels, Thomas R. H., *500
Daniels, Winthrop More, 338, 852
Davidson, A. T., 338
Davidson, W. E., 105
Davis, John, 1176
Davis, W. L., 852
Day, William L., 1061
Deal, E. C., 500
De Mart, F. W., 613
De Windt, J. P. H., 1305
Dickson, John, 563
Dimmer, L. C., 1234
Dolan, Peter C., 1421
Dolan, Thomas, 1421
Dole, Alva C., 1365
Doolittle, Frederick, *1122
Doughty, H., 614
Duerr, J. V. B., 285
Duffy, C. N., 1121
Duffy, Frank J., 434. 799
Dunlap, Alvin, 1176
Dunlap, G. W., 1478
Dunne, Edward J., 564
Dusenberry, James P., 1062
Dutton, W. A., 748

Eaton, Ralph W., 1062
Ebbson, L. T., 158
Edgar, B. C., 1305
Edwards, Charles A., 613
Edwards, J. Paulding, 434
Eldridge, Chauncey, 1305
Elkins, A. F., 1177
Elliott, Howard, 60
Emmett, William Temple, 799
Ewing, Nathaniel, 800

Fahnestock, Harris Charles, 1306
Faut, D. A., 1477
Fennell, Daniel L., 158, 212
Ferguson, W. H., 158
Ferry, Montague, 1177
Feustal, Robert M., 563
Fields, G. C., 613
Fish, Williston, 1062, *1122
Fisher, Daniel G., *1234
Foley, C. F., 158
Folk, Joseph W., 563
Ford, A. H., 1234, *1306
Forsyth, Henry H., 852
Foster, W. H., 1234
Francis, J. D. Perry, 285
Franklin, C. J., *564
Frederick, William R., 338
Fritch, Louis C., 747
Frueauff, F. W., 385
Funk, Frank H., 60
Funk, Harry E., 613
Furlong, A. D., 61
Furth, Jacob, 1366

Gallaher, C. C., 1176
Gannon, John J., 1013
Gaston, George A., 950
Gault, E. D., 563, 614
Gaumnitz, E. C., 1177
George, James Z., 1013
Gibson, James S., 1013
Gillette, James Walter, 1365
Gilman, L. C., 212
Ginn, F. H., 338
Gobey, Francis Edward, 613
Goff, F. H., 338
Gonzenbach, Ernest, 104, *951
Goodwin, J. S., *386
Graham, Edward R., 1234
Graham, George C., 1177
Grambs, W. J., 435
Griffin, W. V., 563
Griffith, Charles J., 1014
Griswold, Howard, 1365
Ground, J. W., 1421

Hall, Henry Clay, 338
Hamilton, F. M., 1177
Hammett, Edward, 212
Hannaford, Foster, 1120
Hannaford, R. M., 1365
Harlan, James S., 693
Harries, George H., 950, 1421
Harrington, M. J., 613
Harris, George H., 159, 563
Harrison, Hugh H., 385
Hart, Joseph S., 385
Harvey, J. H., 158, 212
Hayden, J. G., 1176
Hayes, P. J., 1013
Hazelrigg, S. F., 212
Hebner, Charles N., 693
Hegarty, D. A., 104, 563
Heilman, R. E., 1121
Hendley, W. E., 499, 564
Hendrie, George, 105
Henry, T. N., 1305
Hewitt, Edward, 212
Hight, Eugene, 158
Hoagland, H. G., 1013
Honor, James, 614
Hoover, F. W., 499, 1176
Hotchkiss, C. W., 385
Huber-Stockar, Emil, 613, 747
Huff, Slaughter W., 61, *105, 285
Houston, D. W., 1421
Houston, E. J., 614
Howard, D. H., 799
Humpe, J. H., 158
Huntington, Henry E., 563

Irelan, S. B., 1176
Irvine, Frank, 799, 852
Irwin, Howard W., 747
Ivers, Harry B., 286, 435
Ivers, Wallace J., 1013

Jackson, A. H. R., 1120
Jefferies, Alva A., 1178
Jenkins, Thomas M., 104
Johnson, C. C., 434
Johnson, Joseph, 1305
Jones, A. H., 1121
Jones, B. J., 1365
Jones, S. W. C., 158
Jumonville, H. J., 1013, *1121

Kalbach, Andrew, 212
Karow, Edward, *61
Kealy, Philip J., 435
Kearny, P. J., 747
Kelker, R. F., Jr., 613
Kelsey, Charles B., 385
Kennedy, John S., 212
Kidd, George, 1121, *1177
King, C. B., 1176, 1365
Kinkel, John M., 285
Kinnarney, John, 852
Knox, George W., *1178
Kochersperger, H. M., 799
Korst, P. H., *213
Kramer, A. Ludlow, 434

Ladue, Pomeroy, 434, 563
Lang, H. C., 338
Larmouth, J. H., 693
Lenhart, C. E., 1061
Leussler, R. A., 1013
Libbey, W. S., 1234
Lillie, E. E., 1305
Lincoln, E. B., 1014
Loos, William K., 1176, 1305
Louderback, Delancy H., 901
Lynn, Tracy, 1176
McArdle, James, 564
McCarthy, G. A., 1421
McClure, J. H., 60
McCoy, Hugh, 1477
McGovern, W. A., 1477
McKinley, W. B., 613, 747
McLean, E. S., 1234
McLimont, A. W., *286
McMeen, S. G., 285
Mackie, A. D., 159
Macreadie, Andrew S., 1013
Maddock, George F., 212
Maher, Edward A., 386
Mailloux, C. O., 1365
Mandelick, W. E., 563
Mathias, O. C., 1176
Merwin, Byron E., 287
Metcalf, H. L., 159
Meyers, B. F., 693
Miller, Peter M., 693
Miller, T. L., 61
Mills, Roger Clarkson, 212
Mitchell, Edwin R., 614
Montgomery, R. T., 1061
Moore, Lewis E., 499
Moore, W. E., 1120
Morrison, Henry, 500
Morrison, Norman, 852
Morrison, Robert, Jr., *564
Morrison, R. W., 434
Mortimer, James D., *694
Mudge, H. U., 1234
Mullen, T. J., 385
Munger, E. T., 286
Munton, C. J., 385
Murray, W. S., 613, 950
Murrin, W. G., 1013, *1062
Musser, Frank B., 693

Nagle, George O., 1061
Nash, L. C., 285
Neall, N. J., 901
Neat, John R., 1062
Newman, F. R., 1061
Newton, C. A., 285
Nichols, F. A., 1421
Nicholson, W. G., 285, 386
Noble, Alfred, 951
Nolan, Edwin Emerson, 213
Norris, H. H., *386

Odell, E. H., 1305
O'Dowd, D. C., 434
O'Hara, Joseph, 1305
Orr, Alexander E., 1306

Palmer, Lewis E., 499
Patten, Howard, 338
Patterson, G. N., 385
Patterson, H. C., 748
Pearson, R. Vance, 613
Pearson, Walter Ambrose, 338
Pender, Dr. Harold, 1365
Penney, Thomas, 434
Pevear, J. S., 499, *1014, 1305
Phillips, Benjamin, 285
Phillips, Franklin, 500
Phillips, W. C., 852
Poland, William B., 1305
Pontius, D. W., 60
Porter, Benjamin W., 614
Porter, H. Hobart, 799
Potter, A. E., *60
Potter, W. B., 1176
Punderford, J. K., 1120, *1177
Purdy, J. H., 1120

Ranno, Fred W., 950
Read, Walter E., 1421
Redderson, Arthur W., 1477
Reed, E. W., 499
Reed, George F., 159
Reid, Arthur, 385
Reynolds, R. W., 285, 747
Richards, J. L., 1234
Riddle, Samuel, 285
Robbins, Edward D., 61
Robinson, David, Jr., 901
Robinson, T. Russell, 563
Robison, James J., 1478
Roe, Charles W., 500
Roher, F., 613
Rolley, R. S., 285
Ross, W. D., 693
Rowley, Henry W., 499
Rudd, L. G., 159
Russell, Samuel, 1421

St. Pierre, George W., 434
Saltonstall, P. L., 1305
Sanders, John, 212
Sanderson, E. N., 212
Schindler, A. D., 1365
Schneider, E. F., *500
Schramm, B. J., 613
Schulz, George M., 799, 1120
Sherwood, E. C., 434, 1121
Scofield, E. M., 1477
Scott, W. D., 212
Scovill, F. E., 434
Sharp, W. E., 158
Sheehan, D. P., 1062
Sheldon, George R., 693
Sherman, Albert, 1478
Shonts, Theodore P., 1305
Sims, C. S., 613
Skehan, E. J., 1121
Sloan, M. S., *338, 1061
Smith, Barrett, 385
Smith, Charles Whipple, 799
Smith, E. W. P., 852
Smith, F. E., 1013
Smith, W. N., 799
Smithers, Earle, 1122
Snow, F. Herbert, 747
Snyder, D. W., 1120
Spencer, George, 285
Sperling, R. H., 1013, *1121
Spoffard, R. W., 564
Sprenckle, R. E., 613
Sproul, William C., 901
Squires, Grover, 434
Stainer, M. A., 613
Stangland, R. S., 563
Stanley, Albert H., 1478
Stephens, W. W., 158, 213
Stillwell, Louis B., 1365
Stivers, S. C., 1120
Storey, William B., Jr., 747
Stotesbury, E. T., 1120
Stout, Jackson, 436
Sturgeon, T. L., 852
Sullivan, John H., 852
Sullivan, J. V., 1365
Swain, J. G., 563
Swain, Spencer, 1366
Swift, H. F., 1061

Talbot, F. H., 158
Talbot, Richmond, 563
Taylor, W. L., 385
Tenney, A. B., 104
Tenney, C. H., 104
Tennis, Charles C., 613
Theis, George, Jr., 799
Thompson, Gaylord, 852
Thomson, D. E., 693
Thornton, Henry W., 435
Thorrson, N. M., 285
Tobin, John G., 1305
Tolberg, H. A., 1477
Trask, W. H., 799
Treacy, John J., 951
Trimingham, J. H., 693
Tripp, Guy E., 950

Uffert, John F., 285

Valentine, A. L., 1305, 1365
Van Stantvoord, Seymour, 500, 613
Veser, L. O., 693
Viles, Alden E., 694
Vodges, Jacob M., 613
Voight, George, 287
Von Schrenk, Arnold, 285
Vorce, C. B., 60
Vreeland, H. H., 104, 338

Wakefield, W. J. C., 385
Walker, James Blaine, 1120
Wall, H. M., 1120
Warner, H., 338
Warren, D., 613
Way, S. B., 950, *1014
Webster, Frederick E., 212
Weeks, Edward Prescott, 1234
Weld, F. M., 1477
White, Elmer M., 159
Whitridge, Frederick W., 852
Whysall, George, 799
Wickham, H. J., 1234
Widenor, A. S., 285, 386
Wilcoxon, C. N., 338, 1365
Wilkie, John E., 1176
Wilson, George P., 613
Wilson, Hugh M., 563
Wilson, J. R., 1421
Wilson, W. L., 563
Wirsching, Robert E., 60
Witherwax, Charles J., *693
Wood, B. F., 104, 564
Wood, Robert Colgate, 1177
Wood, William J., 212
Woodroofe, W. T., 1176
Woods, Robert Patterson, 1365
Worman, P. A., 158

Young, P. S., 1061

Zech, N. P., 1477

*Denotes Portrait.